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ABSTRACT

This resource/study guide is designed to accompany the instructional video, "Sugar Cane: A Bitter-Sweet Legacy," which explores the significance of cultivating, harvesting, and refining sugar cane. It is also a brief study of the disappearing African-American workers on the sugar cane plantations in southern Louisiana. Seven main ideas are captured in the film, which takes an interdisciplinary approach by incorporating objectives and activities from social studies, science, mathematics, language arts, art, music, and vocational education. The guide also includes sections dealing with the main ideas, the historical background, narration script for the video, a timeline, content outline, a glossary, and a 32-item bibliography. An appendix features maps, puzzles, a pre- and post-test (and answers), and a number of poems. (DB)

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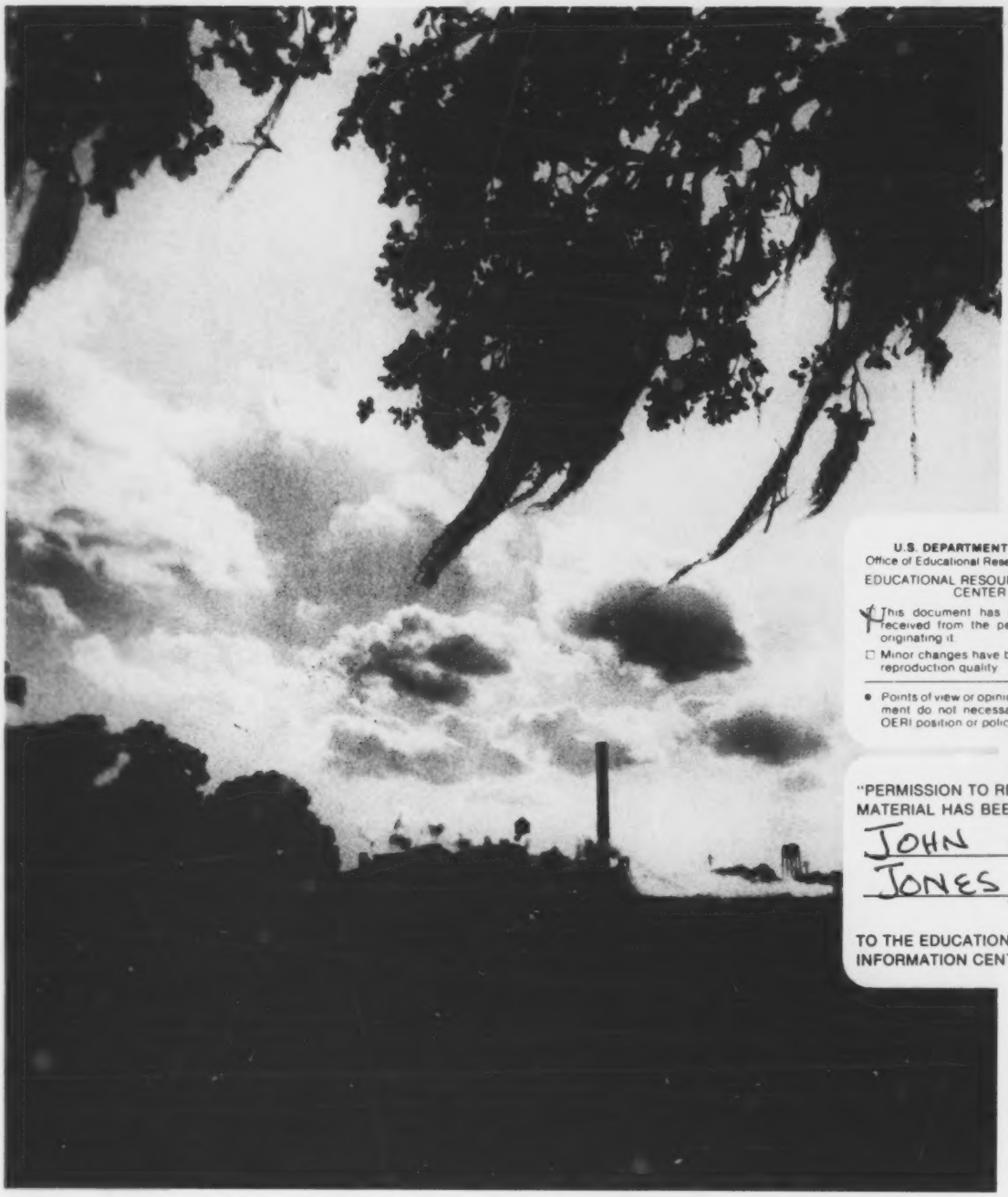

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Sugar Cane: A Bitter-Sweet Legacy

A Study of the Disappearing African-American Worker on the Sugar Cane Plantations in Southern Louisiana

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Sugar Cane: A Bitter-Sweet Legacy

A Study of the Disappearing African-American Workers on the Sugar Cane Plantations in Southern Louisiana

Resource/Study Guide

for Interdisciplinary Learning and Teaching in Social Studies, Science, Mathematics, Language Arts, Art, Music and Vocational Education

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DEDICATION

This Resource/Study Guide for the video tape production, "Sugar Cane: A Bitter Sweet Legacy," a study of the disappearing African-American worker on the sugar cane plantations in southern Louisiana, is dedicated to all of those educators and friends who joined us in creating this format for interdisciplinary teaching and learning. While this Guide will serve as an innovative instructional tool, it is our hope that it will also be a model for the development of other interdisciplinary works.

ACKNOWLEDGEMENTS

"Sugar Cane: A Bitter-Sweet Legacy" was written, filmed, produced, and directed by the Social Studies Department and the Center for Instructional Media and Technology in the Division of Educational Programs of the New Orleans Public Schools. The film was completed with the cooperation of many people throughout southern Louisiana who are too numerous to mention here, but who are included in the credits of the film.

The Resource/Study Guide for the film was prepared by five dedicated New Orleans Public Schools' teachers, under the supervision of John A. Jones, Jr., Instructional Specialist for Social Studies (K-12). To those teachers who worked as a volunteer committee, we gratefully acknowledge our appreciation for their work in preparing the drafts for several of the sections of this Guide.

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We also express our sincere thanks to the program director, instructional specialists, and coordinators in science, mathematics, language arts, art, music and vocational education in the Department of Curriculum and Instruction for their review of the final draft of our interdisciplinary learning and teaching objectives and activities in their area of expertise.

An abundance of gratitude is extended to Viola Johnson, Manager, and Staff of the New Orleans Public Schools' Print Shop for the typesetting and printing of the Resource/Study Guide. We thank Linda M. Verneuil, Secretary to the Social Studies Department, for typing the several drafts of the Guide. Deepest appreciation is also extended to Charles F. Donatto, Assistant Principal at the Livingston Middle School and Murphy G. Sanchez, Sr., retired teacher and administrator with the New Orleans Public Schools, and Ms. Johnson for their review of the final draft of the Guide.

To Dr. Everett J. Williams, Superintendent, New Orleans Public Schools, and Dr. Matthew Proctor, Jr., Deputy Superintendent, we express our sincere appreciation for their support for this special project. And finally, we thank Gail M. Glapion, Member, Orleans Parish School Board, for her inspiration and full cooperation to make this project a reality.

Sugar Cane: A Bitter-Sweet Legacy

A Study of the Disappearing African-American Worker on the Sugar Cane Plantations in Southern Louisiana

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INTRODUCTION

"Sugar Cane: A Bitter-Sweet Legacy" is an instructional film which explores the significance of cultivating, harvesting, and refining sugar cane. It is a brief study of the disappearing African-American workers on the sugar cane plantations in southern Louisiana.

The film is a three-part exploration of the aforementioned themes. The first part is the introduction, which uses commentary from the oral tradition to introduce the film. The second part is a narrative, which is a collection of statements explaining the cultivation, harvesting and refining of sugar cane. Third is the conclusion, which includes interviews from three experts on the sugar cane industry who are associated with the Department of Agriculture and Home Economics at Southern University and A and M College at Baton Rouge, Louisiana and Louisiana State University Co-Operative Extension Service also at Baton Rouge, Louisiana.

Seven main ideas are captured in the film. The ideas comprise five sub-disciplines in the social studies, but are easily correlated to the other core and elective subjects. The main ideas embrace history, sociology, economics, geography, government and the humanities.

The film is 22 minutes in duration. It is recommended that the material in the Resource/Study Guide, which accompanies the film and/or other appropriate materials, be incorporated in pre- and post-viewing activities. As a reminder, materials from the guide may be reproduced, but for educational use only.

THE MAIN IDEAS

I. The number of African-American workers in the production of sugar cane, as well as other industries, is decreasing primarily due to the advancement of mechanized technology.

II. The African-American worker/family is being displaced and relocated in urban centers.

III. The importance of the sugar cane industry in Southern Louisiana is essential to the economy of the United States.

IV. Sugar cane, as a cash crop, is vital to the economy of Louisiana.

V. Most sugar cane is grown and processed in particular geographic areas in Southern Louisiana.

VI. The role of government is to support research and maintain quality in the production of sugar cane.

VII. An increasing number of African-American workers/families view education as a means of achieving career diversification.

HISTORICAL BACKGROUND

There are several theories that explain the origin and cultivation of sugar cane. One theory is that more than 8,000 years ago the inhabitants of South Pacific Islands grew sugar cane. Another theory is that sugar cane plants were widely grown in ancient India. Research shows that sugar cane was first referenced in the records of an expedition to the area now called Pakistan by the Macedonian King Alexander the Great in 325 B.C.

About 100 B.C., the cultivation, harvesting, and refining of sugar cane spread from India to China, but it was not until A.D. 636 that it reached Europe. During the beginning of the 15th century, Europeans planted sugar cane in Africa and on islands in the Atlantic Ocean. In 1493, Christopher Columbus brought sugar cane cuttings to Santo Domingo (Hispaniola).

The first sugar mill in the Western Hemisphere was established in 1509 at Yaguate (Dominican Republic). Sugar cane was first cultivated in Cuba in 1511. At the same time, the sugar cane culture spread to most of the West Indies Islands, Mexico, Brazil, and Peru.

The harvesting and refining of sugar cane improved abroad as it replaced other crops in the economy of other nations. Improved refineries to maintain the progress already being achieved in the New World sprung up in Lisbon, Marseille, Antwerp, Hamburg, Amsterdam and London. Initially, these refineries were small and numerous, but because of an increased demand for sugar products, they soon consolidated into the large, centralized systems which exist in some of the same countries at present and in the United States.

Sugar cane refining in the United States was practiced initially on a very small scale in New York City beginning in 1689. Numerous others refineries sprung up in the larger seaboard cities.

Despite the assertion that sugar cane was introduced into the Louisiana colony by Pierre le Moyne, Sieur de Iberville in 1700, it is the Jesuit missionaries who were credited with first planting and cultivating a new variety of sugar cane from Santo Domingo in Louisiana in 1751. The first sugar mill in Louisiana was established in 1758 by Joseph Dubreiul and exported its first shipment of sugar to France in 1765. Antonio Mendez built the first sugar mill in New Orleans in 1791. The first successful harvesting and refining of a sugar cane crop in Louisiana was credited to Etienne de Bore' who built a mill in Louisiana and completed the first successful efforts to commercialized sugar in Louisiana in 1795.

Methods to produce and refine sugar cane improved over the years. By 1813, E.C. Howard of England invented a vacuum pan process. Twelve years later, refining methods were further improved by using steam boiling under vacuum process. Sugar production became a major industry in the United States about 1830.

In 1840, a new method of evaporation with vacuum techniques to refine sugar cane was introduced in New Orleans. Yet, more inventions would continue to improve the sugar refining industry. In 1845, Norbert Rillieux invented a vacuum evaporating pan (a series of condensing coils in vacuum chambers) which reduced the industry's dependence on human laborers and helped manufacture a superior product at a greatly reduced cost. The first Rillieux evaporator was installed at Myrtle Grove Plantation in Louisiana, in 1845. In the

following years, factories in Louisiana, Cuba and Mexico converted to his system. Even though Rillieux's inventions were of great value to the industry, they are the least recognized and cited in reference literature.

A native of New Orleans, Norbert Rillieux was the son of Vincent Rillieux, a wealthy engineer, and Constance Vivant, a slave on his plantation. Young Rillieux's higher education was obtained in Paris where his extraordinary aptitude for engineering led to his appointment at the age of 24 as an instructor of Applied Mechanics at L'Ecole Centrale. Rillieux returned to Paris permanently in 1854, securing a scholarship and working on the deciphering of hieroglyphics. When his evaporator process was finally adopted in Europe, he returned to inventing with renewed interest applying his process to the sugar beet. In so doing, he cut production and refining costs in half.

Norbert Rillieux died in Paris on October 8, 1894, leaving behind a system which is in universal use throughout the sugar industry as well as in the manufacture of soap, gelatin, glue and many other products.

The crossbreeding of sugar cane began in 1880, in Java and Barbados. One of the experiment stations to advance the crossbreeding process was established in Kenner, Louisiana in 1884.

Other than tariffs and duties, the movement of sugar in world trade has been subject to international controls. In 1902, the international sugar agreement concluded at Brussels, Belgium became the basis of subsequent international agreements.

Contemporary consumption of sugar has continued to rise, and the production of sugar has kept pace with the demand. However, because sugar consumption in the United States exceeds domestic production, the nation imports sugar, although imports have diminished in recent years. In 1881 sugar imports were valued at more than $2 billion and in 1982, sugar imports reached only $860 million. Sugar production in the mid-1980's is estimated at almost 100 million metric tons yearly. The world's largest producers of cane sugar are India, Brazil, Cuba, China, Mexico, Australia and the United States. Cane-sugar production in the United States is concentrated in Hawaii, Florida, Texas, Puerto Rico and Louisiana.

Sugar Cane: A Bitter-Sweet Legacy

NARRATION SCRIPT FOR FILM

The purposes of this instructional video-tape are to acquaint students with the sugar cane industry in Louisiana and to facilitate their understanding of the reasons for the disappearing African-American workers on the sugar cane plantations in southern Louisiana.

Photo by Tommy Morgan

Sugar cane is grown in the continental United States only in Florida, Texas and Louisiana. According to a Louisiana Sugar Cane Industry Production Data Report in 1987, 285,000 acres of sugar cane was grown on 285 farms in 17 parishes in Louisiana, employing approximately 5,000 workers. The cane is ground by 21 mills located throughout the sugar cane growing region. The raw sugar produced at the cane mills is refined at five refineries located in Louisiana and at one refinery in Texas. There are other manufacturing plants in the state that make products from bagasse and blackstrap molasses, two important by-products of the sugar industry.

Photo by Tommy Morgan

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Each year each American consumes approximately 100 pounds of sugar. While sugar has no flavor of its own, it accentuates flavor in food and preserves food. Next to oxygen, sugar is one of the most important substances in our blood stream. It is one of the prime sources of energy. Therefore, sugar and its by-products are in much demand in American society.

Photo by Tommy Morgan

Much of the sugar we use in the United States is grown here and much comes from abroad. It is estimated that Americans use over 11 million tons of sugar annually. More than one half of that amount comes from places outside of the United States. Hawaii furnishes 10 percent of our nation's sugar supply; Puerto Rico provides about 3 percent of our sugar supply; and 32 foreign countries provide approximately 5 million tons of the sugar cane. Louisiana produces about 35 percent of the cane sugar produced in the continental United States. Beet sugar is produced in 14 states.

Photo by Tommy Morgan

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In 1751, Jesuits from Santo Domingo planted the first sugar cane patch in now what we call downtown New Orleans. In 1795, on a plantation which is now known to New Orleanians as Audubon Park, Etienne de Bore', developed a way to commercially manufacture sugar from sugar cane. In 1830, the old "open kettle" method of granulating sugar gave way to the newer vacuum pan process and in 1846, a patent was granted to Norbert Rillieux for an improved version of the vacuum pan process. Rillieux, who had been born a slave, obtained an education in France after being freed.

Photo by Tommy Morgan

A lot has been learned about sugar cane since those early days. Today scientists and researchers from Louisiana State University, Southern University, and the United States Department of Agriculture and others are constantly working to provide new and better varieties of sugar cane. Varieties, of course, which are resistant to disease and pests, but that are high in sugar content.

Photo by Tommy Morgan

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Sugar cane is planted annually beginning in mid-August. For nearly a year, prior to planting, the field is prepared. It is leveled and drained. It is cultivated, which helps to eliminate grass and weeds in the field. After the field is set into rows and the rows are opened, the sugar cane is planted, both by hand, as it has been for hundreds of years, and now by mechanical planters.

Sugar cane is not grown from seed like most other crops. Instead, the cane stalks are planted. A cane stalk consists of a series of joints, and each joint has a bud. When the cane stalks are laid in the ground and covered with soil, buds sprout producing a new crop of cane. Sugar cane does not have to be planted each year because, as one crop is harvested, another crop will grow back next year from the same roots. In Louisiana, three annual crops of cane are usually harvested from one planting.

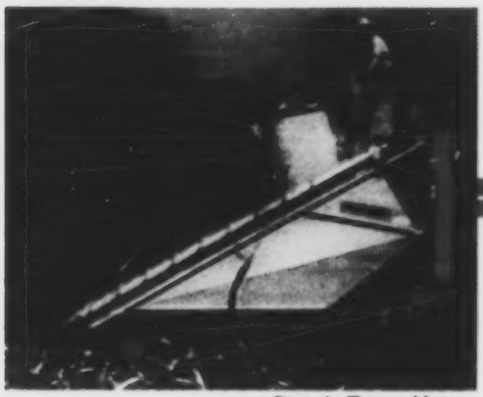

Photo by Tommy Morgan

Each year the grower plants about one third of his acreage. Cultivation, the stirring of the top soil with a tool attached to a tractor, is done in the spring. Cultivation helps to control weeds and grass. It keeps the soil pulverized and loose so that the cane roots can get air and moisture for growth.

Photo by Tommy Morgan

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Most plant food which sugar cane needs is found naturally in the soil. Farmers add more plant food in two ways. During years when a piece of land is not being used to grow cane, a farmer must grow legume crop such as soybeans and plant this crop into the soil to help feed the cane crop which will follow. Additionally, farmers add chemical fertilizers to the soil around the growing cane in early spring during the cultivation period.

Louisiana sugar cane is harvested in October, November and December. Sugar cane is harvested when its sugar content is high. A mechanical harvester has replaced the old hand-swung machete. Practically all of the cane is harvested with mechanical harvesters which cut the stalks and pile the stalks across the row. The harvested field is set afire by a propane torch at the back of a tractor. This burning rids the top leaves and the trash. The fire does not burn the stalks because nature has provided a tough skin which protects against fire. Therefore, no sugar is lost in the burning. Burning a field takes about 30 minutes, and any short-term ill effects of the burning are more than offset by the nine months that the green growing cane puts oxygen into the atmosphere and removes carbon dioxide. The fire goes out by itself when the trash is burned off. The cane is then loaded by mechanical loaders into the tractor-drawn sugar cane wagons. The wagons haul the cane either directly to the mill or to field transfer points where it is transferred to trucks and hauled to the mill.

Photo by Tommy Morgan

During the harvest season, the sugar cane mill runs 24 hours a day, seven days a week. The sugar cane mill crushes the juice from the cane, removes the impurities from the juice, evaporates water from the juice until it is a thick syrup, crystallizes the sugar in the syrup by boiling it under vacuum, and separates the sugar crystals from the syrup. The sugar crystals are known as raw sugar. When the mill has removed all the raw sugar it can remove from the syrup, the syrup becomes black strap molasses, an excellent livestock feed. Bagasse is what remains of the fibrous cane stalks after the juice is crushed out. Bagasse is used for fuel in most mills. Bagasse from other mills is used to make paper, building boards known as Celotex, mulching material for plants, litter or bedding for poultry and livestock, and is used in the manufacture of plastics.

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Photo by Tommy Morgan

Sugar refining takes brown raw sugar and makes the white refined sugar we use. The impurities and molasses still in the raw sugar are removed. During the process, the raw sugar crystals are melted in water and the sugar is recrystalized after the color and impurities are removed.

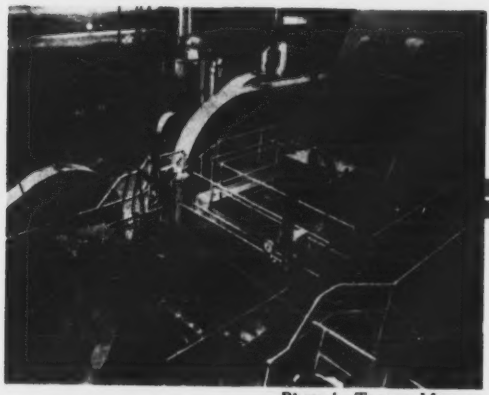

Photo by Tommy Morgan

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The scenes obtained to produce this videotape were shot on location and interviews were obtained from current and retired sugar cane workers on various plantations. Additionally, interviews were obtained from officials of the College of Agriculture and Home Economics at Southern University in Baton Rouge, Louisiana; from an Agriculture Liaison Officer from the United States Department of Agriculture, Soil Conservation Service, who is on the Southern University Staff; and the Louisiana State University Cooperative Extension Service.
Each of the officials interviewed responded to the following questions:

What is your assessment of the current status of the sugar industry in southern Louisiana?

What could you offer to explain the disappearing African-American workers on the sugar cane plantations (farms) in southern Louisiana?
What is happening to these workers (families) and where are they going?

What is your estimate of the future of the sugar cane industry in southern Louisiana?

STATE OF LOUISIANA
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March 20, 1990

Mr. John A. Jones, Jr.
Instructional Specialist
New Orleans Public Schools
5931 Milne Boulevard
New Orleans, Louisiana 70124

Dear Mr. Jones:

I have received the copy of "Sugar Cane: A Bitter-Sweet Legacy." My staff viewed the video and reviewed the accompanying teacher's guide material with interest.

The video production (both technically and pedagogically) is quite sound, and I am sure that such a program could be of assistance to teachers who are interested in incorporating this information into their curriculum planning.

Thank you for providing the Department with this material. I suggest you contact Mrs. Ayan Rubin, State Instructional Television Coordinator, to determine how this program may be disseminated most effectively.

Sincerely,

Wilmer S. Cody
Superintendent

WSC:cdj

INTERDISCIPLINARY OBJECTIVES AND ACTIVITIES

I. SOCIAL STUDIES

A. **Objective**
The student will understand that the number of African-American workers in the production of sugar cane, as well as other industries, is decreasing due to the advancement of mechanized technology.

Activity
Create a pictograph showing the number of workers needed to plant, harvest and refine Louisiana sugar cane in 1860, 1900, 1940, 1980, and today.

B. **Objective**
The student will understand that the African-American worker/family is being displaced and relocating in urban centers.

Activity
Draw and label a bar graph showing the percent of rural to urban dwellers in Louisiana for the years 1860, 1900, 1940, 1980, and today.

C. **Objective**
The student will comprehend that the importance of the sugar cane industry in southern Louisiana is essential to the economy of the United States.

Activity
Analyze data and prepare a pie chart comparing the monetary value of Louisiana sugar cane products and its by-products to those which are produced in other areas of the United States.

D. **Objective**
The student will recognize that sugar cane, as a cash crop, is vital to the economy of Louisiana.

Activity
List the following information for the production of sugar cane in Louisiana for the present decade:

1. number of workers employed on farms/plantations;
2. income generated; and
3. personal and corporate taxes.

E. **Objective**
The student will understand that most sugar cane is grown and processed in a particular geographic area of Louisiana.

Activity
Draw and label maps of Louisiana showing those parishes where sugar cane is grown and refined.

F. **Objective**
The student will recognize that an increasing number of African-American workers/families view education as a means of achieving career diversification.

Activity
Construct a line graph showing the number of Louisiana African-Americans who completed elementary school, secondary school, trade school, and college for the years 1900, 1920, 1940, 1960, 1980, and today.

G. **Objective**
The student will understand the roles which federal and state governments play in aiding African-Americans through the transition of leaving agriculture related employment or mostly unskilled labor to the acquisition of technologically trained jobs or skilled labor.

Activity
Write an essay in which a high school student from an agricultural area explores his/her career options after high school, and settles on one or more of them. Include as many of the following as possible:

Public vocational-technical schools
Public junior colleges in rural areas
Government grants
Government loans
Job programs
Minority contract set-asides
Minority hiring policies
Counseling programs
Military programs

H. **Objective**
The student will understand that events occurring in one segment of a society may affect many other segments of that society.

Activity
Trace the social, political and economic effects that both of the following had on the African-American population of Louisiana: 1) the invention of vacuum-pan processing, and 2) the introduction of two new sugar cane varieties-ribbon and Otahiti.

I. **Objective**
The student will understand the reason for the rapid growth of corporations related to the Louisiana sugar cane industry after the Civil War.

Activity
Create a monologue set in 1870, in which you are the president of a Louisiana corporation with investments in several sugar cane plantations, and explain why you invested in the business.

II. SCIENCE

A. **Objective**
The student will understand how favorable climatic conditions in Louisiana contribute to the production of sugar cane.

Activity
Compare the conditions that influence the growth of sugar cane in Louisiana, Florida and Hawaii. (Note: Include latitude, precipitation and length of growing season.)

B. **Objective**
The student will research the different varieties of sugar cane.

Activity
Compare the varieties of sugar cane, genus Saccharum, including the species Saccharum officinarum developed from wild Pacific Island cane.

C. **Objective**
The student will explain how the sugar content determines the quality of the sugar cane.

Activity
Develop a chart which shows the amount of sugar processed from various types of cane.

D. **Objective**
The student will list and explain the by-products of sugar cane production.

Activity
Prepare a collage which includes, but is not limited to, the following sugar cane products: sugar, molasses, celotex, cattle feed, poultry feed, mulch, paper and plastic.

E. **Objective**
The student will identify and discuss the steps in the process of taking sugar cane from harvest to granulation.

Activity
Prepare an illustration which takes the harvested sugar cane from the cane-feeder table to the exhausted molasses tank (also known as cane blackstrap) and processed sugar.

F. **Objective**
The student will know the chemical composition of sugar cane.

Activity
Supply the missing parts of the chemical formula for sucrose (table sugar) and explain the differences between monosaccharides and disaccharides:

$C_6 H_{12} O_6$	monosaccharides (glucose - corn sugar, fructose - fruit sugar)
$C_{12} H_{22} O_{11}$	disaccharides (sucrose - table sugar, lactose - milk sugar)

G. **Objective**
The student will understand the effects of various pesticides on Louisiana's sugar cane crop.

Activity
Write a report explaining the four groups of pesticides used to combat diseases and pests in sugar cane: insecticides, fungicides, herbicides, and nematicides. Include the following in your response: mosaic disease, sere, gumming disease, Fiji disease, leaf scald, ratoon-stunting disease and moth borer.

III. MATHEMATICS

A. **Objective**
The student will explain the metric equivalents of selected weights and measures.

Activity
Compute the following weights and measures into metric equivalents:

Acre	= .405 hectares
Arpents	= .85 acre
Bushels (dry measure)	= 35.238 liters (U.S.)
Hogs head	= 238.5 liters
Metric ton	= 1.000 kilograms
100 lb. weight bag	= short hundredweight or .055 short tons

B. **Objective**
The student will determine what percent of Louisiana's total farm acreage is presently devoted to growing sugar cane.

Activity
Construct a pie graph comparing acres cultivated for Louisiana's staple crops during the current decade: sugar cane, soybeans, rice, sweet potatoes and cotton.

C. **Objective**
The student will understand how to compute profits based on the sugar content in the cane.

Activity
List the various types of sugar cane and explain how the sugar content is determined in each.

D. **Objective**
The student will understand how to estimate the number of future sugar cane plants per unit of land.

Activity
If a farmer plants 4,000 to 10,000 sets of sugar cane per acre, state the upper and lower limits of plants that an acre might produce. (Note: a set is a segment of sugar cane that has about three joints [nodes] which bud during growth.)

IV. LANGUAGE ARTS

A. **Objective**
The student will distinguish the three main parts of the video: introduction, discussion (narrative), and conclusion.

Activity
Identify the three main parts of the video by constructing an outline consisting of the main headings and subheadings.

B. **Objective**
The student will comprehend the main ideas of the narrative in "Sugar Cane: A Bitter-Sweet Legacy."

Activity
Write a synopsis of the narrative, along with supporting details.

C. **Objective**
The student will become familiar with poetry that relates to farming and agriculture developed by African-Americans.

Activity
Describe the mood and interpret the symbolism in at least one of the following works:

Margaret Walker	*"Sorrow Home"*
	"Delta"
Langston Hughes	*"Freedom's Plow"*
Arna Bontemps	*"A Black Man Talks of Reaping"*
Georgia Johnson	*"Old Black Man"*
Fenton Johnson	*"Who Is That a-Walking in the Corn?"*
Countee Cullen	*"From the Dark Tower"*

D. **Objective**
The student will differentiate between the narrative and the interview segments in the video, "Sugar Cane: A Bitter Sweet Legacy."

Activity
Identify the parts of the video which use narrative and those which use interview techniques. Select a main idea (theme) and develop it by using one or both of the techniques.

V. ART

A. **Objective**
The student will derive meaning and value from aesthetic qualities in the environment.

Activity
Compare your own environment with the environment of the sugar cane workers. Describe the qualities that make these two environments aesthetically similar, different, pleasant and/or unpleasant.

B. **Objective**
The student will respond imaginatively to the visual imagery in the video.

Activity
Imagine that you have been asked to design a poster to announce the showing of the video in your school. Make a small color sketch of your poster ideas. Use the title of the video in your sketch.

VI. MUSIC

A. **Objective**
The student will understand the relationship of tempo to mood.

Activity
Given familiar traditional songs in a variety of tempos, identify each of the songs as either exciting or mournful.

B. **Objective**
The student will understand the relationship of key to mood.

Activity
Listen to a major or minor cord as a key center and determine the mood of that musical selection.

C. **Objective**
The student will understand the relationship of the lyrics to the setting.

Activity
Identify the motif or the main idea in the lyrics of the video.

VII. VOCATIONAL EDUCATION

AGRICULTURE

A. **Objective**
The student will understand the cycle in which sugar cane is planted, harvested and refined.

Activity
Prepare a timeline which shows when Louisiana plantation workers make the fields ready to plant, harvest and refine sugar cane.

B. **Objective**
The student will understand the process of refining sugar cane.

Activity
View a film in the classroom, or invite a refinery administrator to speak to the students, or visit one of the sugar refineries in the state and observe the refining process in operation and write an essay describing the process, the work involved, and the attitudes of workers toward the work.

BUSINESS EDUCATION

A. **Objective**
The student will understand that the profit derived by farmers in the sugar cane industry is based on the quality of the sugar content in the cane.

Activity
Make a chart showing a comparison of the current market price and sugar futures of cane sugar.

B. **Objective**
The student will understand the concept of cooperative farming.

Activity
Compare the costs of producing an acre of sugar cane on a self-contained farm with that of a cooperative.

C. **Objective**
The student will understand that the actual profit obtained from the production of sugar is based largely on supply and demand and government subsidy regulations.

Activity
Develop a table with notes listing government programs that affect the market value of sugar cane.

D. **Objective**
The student will comprehend the development of technology to improve the production, harvesting and refining of sugar cane.

Activity
Write an essay that identifies various machines which transformed rural America from what may be called a human dependent age to a machine dependent age.

E. **Objective**
The student will determine the status of the sugar cane industry in Louisiana and the potential of the sugar cane industry in other states and other countries.

Activity
Compare the production yield of sugar cane in Louisiana, the export factor, the money earned by the workers, and the production cost of sugar cane in Louisiana as compared with sugar cane plantations and refineries in at least two other locations.

CAREER EDUCATION

A. **Objective**
The student will explain the role of various workers in each area of sugar cane production.

Activity
List and discuss the major jobs associated with sugar cane cultivation, harvesting, refining and research. Explain the training needed to become a worker in each of the areas of production. The advantages and disadvantages of these jobs; chances for advancement; the pay in each of the areas; and indicate whether or not the skills learned can be transferred to other agricultural or industrial jobs.

HOME ECONOMICS

A. **Objective**
The student will understand when to use granulated (white) sugar and/or brown sugar in cooking recipes.

Activity
Compile several recipes in which white sugar or brown sugar, or both, are used.

TIMELINE

1493	Christopher Columbus brought sugar cane cuttings to the Caribbean Islands
1509	First sugar mill in the Western Hemisphere built in the Dominican Republic
1511	Sugar cane established in Cuba
1600	Production of raw sugar in America initiates the development of a new expanding industry
1689	First American sugar refinery built in New York City
1700	Sugar cane introduced into the Louisiana colony by Pierre le Moyne, Sieur de Iberville
1747	Andreas Marggraf discovered sugar in the sugar beet
1751	Jesuit missionaries brought a new variety of sugar cane from Santo Domingo and planted it in Louisiana
1758	First sugar mill erected in Louisiana by Joseph Debreuil
1765	First shipment of sugar to France
1787	Franz Karl Achard extracted sugar from sugar beets
1791	Antonio Mendez built the first sugar mill in New Orleans
1794	First successful sugar crop produced in Louisiana by Etienne de Bore"
1795	Etienne de Bore" built a mill in Louisiana and produced sugar on a commercial scale
1803	First sugar beet factory built in Germany
1813	E.C. Howard of England invented a vacuum pan
1825	Refining methods improved with steam boiling under vacuum
1830	Sugar production became a major industry in the United States
1840	New method of evaporation with vacuum technique introduced in New Orleans, Louisiana
1845	Norbert Rillieux invented and patented the multiple-effect vacuum evaporation process which became the basic method for processing sugar and which replaces the old, inefficient open-kettle process
1845	First Norbert Rillieux evaporator installed at Myrtle Grove Plantation, Louisiana
1852	Centrifugal separator invented
1878	Revolving drum for drying refined sugar invented
1880	Crossbreeding of sugar cane began in Java and Barbados
1884	Sugar Exchange started as an experiment station in Kenner, Louisiana
1902	International sugar agreement completed at Brussels, Belgium
1926	Noble cane or Saccharum officinarum L became infested with mosaic disease - yield of sugar decreased from 300,000 tons per year to 47,000 tons
1926	Introduction of hybrid sugar cane from Java
1929	Proefstation Oost Java (POJ) production increased to 199,000 tons
1965	Ion exchange process used almost universally in the United States sugar industry for treating sugar juices and molasses
1981	Sugar imports valued at more than $2 billion
1982	Sugar imports reached only $860 million
1985	Sugar production estimated at almost 100 million metric tons annually

CONTENT OUTLINE

I. SUGAR CANE IN LOUISIANA

A. **Origin**

1. people
   a. Jesuit missionaries
   b. Antonio Mendez
   c. Etienne de Bore

2. places
   a. Dominican Republic
   b. Brazil
   c. India
   d. West coast of Africa

B. **Cultivation theories**

II. SOURCES

A. **Plant growth**

1. stalk (cane)
2. root (beet)

B. **Food group**

1. carbohydrate
2. refined (purified sugar)

C. **Kinds**

1. monosaccharides
   a. glucose - dextrose (corn sugar)
   b. fructose - levulose (fruit sugar)

2. disaccharides
   a. lactose (milk sugar)
   b. maltose (malt sugar)
   c. sucrose (table sugar)

3. polysaccharides
   a. cellulose - plant walls
   b. glycogen - animal starch

4. nucleic acids
   a. ribonucleic- RNA
   b. deoxyribonucleic- DNA

5. xylose
    a. tanning
    b. dyeing
    c. dieting for diabetics

6. artificial sweetener
    a. saccharin
    b. cyclamate

D. **Chemistry of sugar**
1. sucrose (table sugar)
2. glucose (corn sugar)

E. **Types**
1. granules
2. powdered/confectioner
3. brown sugar
4. cube sugar

III. USES

A. **Food sweeteners**
1. soft drinks/sodas
2. baked goods
3. confectionery/candies

B. **Preservatives**

C. **Industrial uses**
1. cement mixing
2. tanning leather
3. plastic

D. **By-products**
1. blackstrap (cane) molasses
    a. ethyle (industrial) alcohol
    b. alcoholic beverages
    c. candy
    d. cattle feeds
    e. canned molasses
    f. food preparation

2. bagasse
    a. celotex
    b. poultry feed
    c. mulch
    d. paper
    e. plastics
    f. animal bedding and litter

IV. CONDITIONS NEEDED TO GROW SUGAR CANE

A. **Location**
   1. United States
      a. Louisiana
      b. Florida
      c. Texas
      d. Hawaii
      e. Puerto Rico

   2. foreign countries
      a. Brazil
      b. India
      c. Cuba

B. **Description**
   1. grass plant
   2. stalks
      a. internodes
      b. nodes

   3. leaf
      a. sheath
      b. blade

   4. colors
      a. white
      b. yellow
      c. green
      d. purple
      e. red
      f. variegated

C. **Land**
   1. soil
      a. fertile
      b. well drained

   2. fertilization
      a. rotation system
      b. legume crop

D. **Climate**
   1. temperature (75^{O} to 86^{O} F)
   2. precipitation (80" to 120")
   3. latitude (37^{O} N to 30^{O} S)

V. CULTIVATION OF SUGAR CANE

A. **Planting**
   1. planted annually (mid-August to mid-October)
   2. cane stalks or stem cuttings (by hand or machine)
      a. joints
      b. buds
   3. cuttings (laid in furrows)
   4. ratooning

B. **Cultivation**
   1. buds (nodes swell and burst)
   2. stalks emerge
   3. leaves
   4. stalks (nodes swell and internodes develop)

C. **Harvesting**
   1. growing season (7-9 months)
   2. stalks cut
   3. stalks into windrows
   4. refining

D. **Processing**
   1. cane (washed and shredded)
   2. juice removed
   3. juice (mixture of crystals and syrup)
   4. centrifugals process
   5. sugar crystals (raw sugar)

E. **Refining**
   1. yellowish - brown raw sugar rinsed
   2. sugar crystals dissolved
   3. evaporation process repeated
   4. centrifuge spun (syrup from crystals)
   5. crystalline sugar flows
   6. moisture absorbed
   7. sugar packaged
   8. residual sugar - brown sugar

VI. VARIETIES OF SUGAR CANE

A. **Noble - Saccharum officinarium**

B. **Proefstation Oost Java** (POJ)

C. **Indian canes** (S. Barberi Jesuret)

D. **Co Varieties** (Co means produced at the Coimbatore sugar breeding station in India)

E. **Canal Point varieties** (bred in Florida)

F. **L Varieties** (bred in Louisiana)

VII. DISEASES
- A. **Mosaic**
- B. **Ratoon stunting**
- C. **Red rot**
- D. **Root rot**
- E. **Gumming**
- F. **Leaf scald**

VIII. PESTS
- A. **Moth borer**
- B. **Sugar Cane beetle**
- C. **Wireworm**
- D. **Soil anthropods**

IX. PESTICIDES
- A. **Insecticide**
- B. **Fungicide**
- C. **Herbicide**
- D. **Nematocides**

X. HEALTH CONCERNS
- A. **Diseases/Disorders**
  1. hypoglycemia
  2. diabetes mellitus
  3. galactosemia
  4. gingivitis
  5. caries
- B. **Benefits**
  1. intraveneous feeding
  2. diet
  3. medical coatings

XI. ECONOMICS

A. **Laborers**
   1. unskilled African-Americans
   2. skilled African-Americans

B. **Mechanization/Technology**

C. **Supply and demand**

D. **Cash Crop**

E. **Government subsidy regulations**

F. **Education**
   1. mobilization/urbanization
   2. agrarian - urban society
   3. career diversification

G. **Industrial utilization of sugar**
   1. bakers
   2. dairies
   3. soft drinks/sodas
   4. alcoholic beverages
   5. paper
   6. plastics
   7. toothpaste
   8. floor wax
   9. toys
   10. explosives

H. **International distribution**
   1. supply and demand
   2. political considerations
      a. tariff restrictions
      b. preferential markets
      c. rationing
      d. government established quotas
      e. bounties
      f. taxes
      g. agreements to regulate prices
      h. wars

GLOSSARY

abroad - Outside one's own country
acre - A unit equal to 160 square rods, 43,560 square feet or 4,047 square meters used in measuring land
African-American field worker - An American of African ancestry who works as a field laborer, usually unskilled, on a farm or plantation
agrarian - Relating to farming land or its use
agriculture - The science or art of cultivating the soil for the production of crops
annual - Occurring or performed once a year; completing the life cycle in one growing season
arthropod - Any of a phylum of invertebrate animals
artificial sweetener - A product which is noncaloric and is used as a sugar substitute
assessment - An amount of value or worth
bagasse - A fibrous material which can be used for fuel, obtained in the sugar making process paper making, building boards, mulching materials, liter, and in the manufacture of plastics
blackstrap molasses - A syrup obtained in the process of making sugar from sugar cane
bounty - A premium or allowance given by a government for raising certain crops
bud - A small swelling or projection on a plant from which a shoot develops
by-product - Something of value produced in addition to the principal product
carbohydrate - Any of certain organic compounds which form an important class of food in animal nutrition
cash crop - A crop raised to be sold for a profit
celotex - A sound-absorbing and heat-insulating board made by compressing bagasse into sheets
cellulose - The chief substance which composes the cell walls of plants
centrifugal - The inertia or tendency to move in one direction which causes a body turning around a center to move away from the center
clarify - To make or become pure or clear
cooperative (co-op) - An organization established for the production and marketing of a product
crop rotation - The changing of crop types annually or over a period of years to replenish the soil
crystallize - Causation to form crystals or crystalline as with sugar or salt
cultivate - To prepare and use land to raise crops by plowing
cyclamate - The salt of a complex organic acid, used as a sugar substitute
deoxyribonucleic acid (DNA) - A nucleic acid forming a principal constituent of the genes
diabetes - A disease associated with inadequate production of insulin by the pancreas and ordinarily characterized by excessive urinary secretion containing an abnormal quantity of sugar
diastase - An enzyme that converts starch and glycogen into dextrin and maltose
disaccharide - Any of a group of sugars which, on hydrolysis, yield two monosaccharides
diversification - The act of branching out into various lines of activity
ethyle alcohol - A colorless, volatile, pungent liquid
evaporate - To change from liquid into vapor
farm - A piece of land which a person uses to raise crops or animals
fertilizer - An organic substance, such as manure, or inorganic substances, such as chemicals, used to make soil more fertile
field - A piece of cleared land used for raising crops or pasturing livestock

fructose - A crystalline sugar found in fruits
fungicide - A chemical used to kill fungi
furrow - A narrow groove or channel made in the soil by a plow
galactose - A crystalline sugar, prepared by the hydrolysis of lactose
galactoses - A congenital disease caused by the lack of an enzyme needed to metabolize galactose
glucose - A crystalline sugar found in plant and animal tissue
glycogen - A starchier carbohydrate stored in animal tissues and the liver which changes into glucose when needed
granulate - To form into small particles or grains
granule - A small grain or particle
gumming disease - A bacteria causing gummy exudates as a result of cell degeneration
harvest - A reaping and gathering of crops
herbicide - Chemical used to kill weeds
hybrid - An offspring of two plants or two animals of different varieties or species
hypoglycemia - A condition caused by a lowered level of sugar in the blood usually because of the presence of too much insulin
industry - A business or manufacturing enterprise
insecticide - A chemical used to kill insects
insulin - A hormone secreted by the pancreas which enables the body to use sugar and other carbohydrates
interdisciplinary - Involving two or more academic disciplines or branches of learning
international - Pertaining to two or more nations
internode - The section of a stalk between two successive nodes
interview - A meeting of two persons, as by appointment
intravenous feeding - Being feed directly into the vein when one is too ill to intake food by mouth
lactose - A crystalline sugar found in milk
leaf scald disease - A bacteria causing a creamy or grayish streaking and later withering of plant leaves
legacy - Something which has been handed down from an ancestor or predecessor
legume - A plant which bears pods containing seeds
machete - A large, heavy knife used for cutting sugar cane or underbrush
maltose - A crystalline sugar obtained by the action of the diastase of malt on starch
manufacture - To produce, make, or process a product
market - An area of economic activity for buying and selling
massecuite - A mixture of sugar crystals and molasses
mechanical harvester - A machine used for cutting and gathering mature crops
mechanized - To do by machine rather than by hand
mill - A building which houses machinery used for crushing or grinding
molasses - A sweet, thick, dark-colored syrup obtained from the process of refining sugar
monosaccharide - Any of a group of sugars that cannot be decomposed by hydrolysis
mosaic disease - A virus which causes wrinkling or blotching of plant leaves
moth borer - An insect whose larvae causes injury to sugar cane by feeding and tunneling within the cane stalks.
mulch - Any loose material serving as a protective covering around plant stems
nematocide - A chemical used to kill nematodes
nematode - Amy of a phylum of worms

node - A joint on a stem of a plant from which leaves grow
nucleic acid - A complex acid derived from nuclein and nucleoproteins
parish - A civil district corresponding to a county
patent - Government protection to an inventor, securing for a specific time, the exclusive right of manufacturing, exploiting, using and selling of an invention
pesticide - A chemical used for killing insects or weeds
plant - A living organism characterized by growth chiefly from the synthesis of inorganic food materials from soil, water, and air; the grounds, buildings, equipment, and machinery of a business or factory
plantation - A large farm or estate, especially in a tropical or semitropical region, on which a variety of crops are grown
polysaccharide - Any of a group of carbohydrates that decompose by hydrolysis into a large number of monosaccharide units
poultry - Domestic fowls, generally or collectively, as hens, ducks, etc.
precipitation - The amount of rainfall in an area
preservative - An additive used to protect against spoilage, discoloration, or decay
product - Something produced by nature or made by human industry
pulverize - To grind into a powder or dust
quota - A proportional part or share required for making up a certain number or quantity
ration - A fixed allowance or portion allotted in time of scarcity
ratoon - A shoot growing from the root of a plant that has been cut down
ratoon stunting disease - A virus causing discolored vascular bundles at the stalk nodes particularly in ratoon crops
raw sugar - Brown sugar crystals that are formed during the refining process
red rot disease - A fungus affecting sugar cane stalks causing the internal tissues to become dull red with whitish patches
refine - To free from impurities or extraneous matter; to make pure
refined sugar - White sugar crystals that are produced from raw sugar after refining; sucrose
refinery - A facility with equipment for purifying products
resistant - To withstand an action or effect
ribonucleic acid (RNA) - A nucleic acid found in the cytoplasm and nuclei of cells
root rot disease - A fungus causing rotting of young rootlets
saccharin - A white crystalline coal-tar compound used as a non caloric sweetening substance
seed cane (cane sets) - A section of immature cane stalk that has about three nodes which bud when planted
skilled - Having specialized ability or training
soil arthropods - Insects that cause injury to sugar cane by pruning off root hairs and gnawing into cane roots
soybean - A legume widely grown for its oil-rich and protein-rich edible seeds and soil enrichment properties
stalk - The stem of a plant which serves as a supporting or connecting element
subsidy - A government grant to a private individual or enterprise deemed beneficial to the public
sucrose - A crystalline sugar found in sugar cane or sugar beets
sugar - A sweet substance obtained chiefly from sugar cane or sugar beets and used extensively in food products
sugar beet - A large beet with a white root that yields sugar

sugar cane - A very tall grass plant with a strong jointed stem and long flat leaves grown in warm regions from which sugar is obtained
sugar cane beetle - An insect that causes damage to sugar cane by gnawing ragged holes in the young plant just below the soil surface
sugar cane growing region - An area whose climate and soil are favorable for the cultivation of sugar cane
sugar crystal - The solidified form of sugar in which the atoms or molecules are arranged in a definite pattern
syrup - A sweet thick liquid obtained in the process of refining cane sugar
tanning - The art or process of converting hides or skins into leather.
tariff - A tax or duty imposed by a government on imported or exported goods
topsoil - The surface soil of land
tractor - A powerful motor-driven vehicle used for pulling farm machinery or hauling loads
trash - Worthless or waste matter of any kind
unskilled - Lacking specialize ability or training
urbanization - To change from rural to urban and vice versa
vacuum - An enclosed space from which almost all air or gas has been removed
variegate - Multiple colors
variety - A group possessing characteristics of its own within a species or subspecies
videotape - A magnetic tape that records and reproduces both sound and picture for television
windrows - A pile of cut sugar cane stalks
wireworm - A worm that destroys the buds of planted seed cane before germination
xylose - A colorless crystalline pentose formed by the hydrolysis of xylan, straw or corncobs

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Academic American Encyclopedia

Encyclopedia Americana

The World Book Encyclopedia

APPENDIX

Louisiana*

Louisiana - my birthplace
Louisiana is my home
I'm gonna ride right thru the storm
Until my days are gone
Cause when the going gets tough
The tough gets going strong
I like the wide open spaces
And the fruits made with grace
The people who greet
With a smile on their face
I like a walk by the river
And the bayous and streams
Fish in the lake
Make a song of my dreams
Louisiana - my birthplace
Louisiana is my home

Repeat

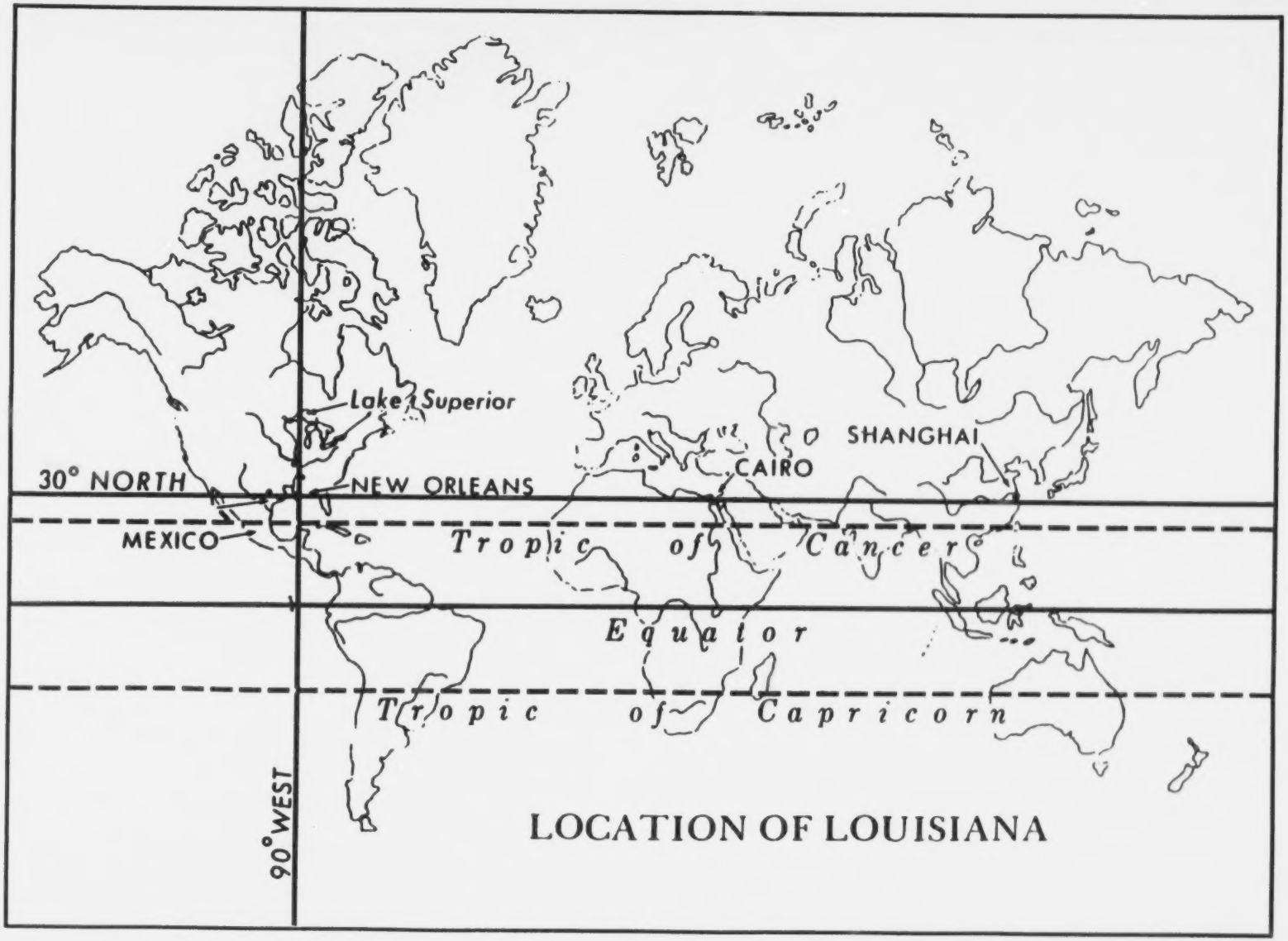
I like the carnival spirit
And a good old parade
On a barn fire night
In a sky line of red
I like the down home cooking
And the Cajun cuisine
And to just take a ride
On a riverboat queen

Chorus

Repeat

Written by
Paul A. Batiste
(P) (c) 1989 Arthang**

*Theme song lyrics of video production, "Sugar Cane: A Bitter-Sweet Legacy"
**Please note that all rights are reserved. Any duplication without written permission is not authorized.



LOCATION OF LOUISIANA

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LOUISIANA
CLAIBORNE
UNION
MOREHOUSE
WEST CARROLL
EAST CARROLL
CADDO
BOSSIER
WEBSTER
LINCOLN
OUACHITA
RICHLAND
MADISON
DESOTO
RED RIVER
JACKSON
CALDWELL
FRANKLIN
TENSAS
WINN
LA SALLE
CATAHOULA
NATCHITOCHES
SABINE
GRANT
CONCORDIA
VERNON
RAPIDES
AVOYELLES
POINTE COUPEE
WEST FELICIANA
EAST FELICIANA
WEST BATON ROUGE
EAST BATON ROUGE
LIVINGSTON
ST TAMMANY
BEAUREGARD
ALLEN
EVANGELINE
ST LANDRY
CALCASIEU
JEFFERSON DAVIS
ACADIA
LAFAYETTE
ST MARTIN
IBERVILLE
ASCENSION
ST JAMES
ST JOHN BAPTIST
ORLEANS
CAMERON
VERMILION
IBERIA
ASSUMPTION
ST MARY
ST CHARLES
ST BERNARD
LAFOURCHE
TERREBONNE
PLAQUEMINES

U S DEPARTMENT OF COMMERCE

BUREAU OF THE CENSUS

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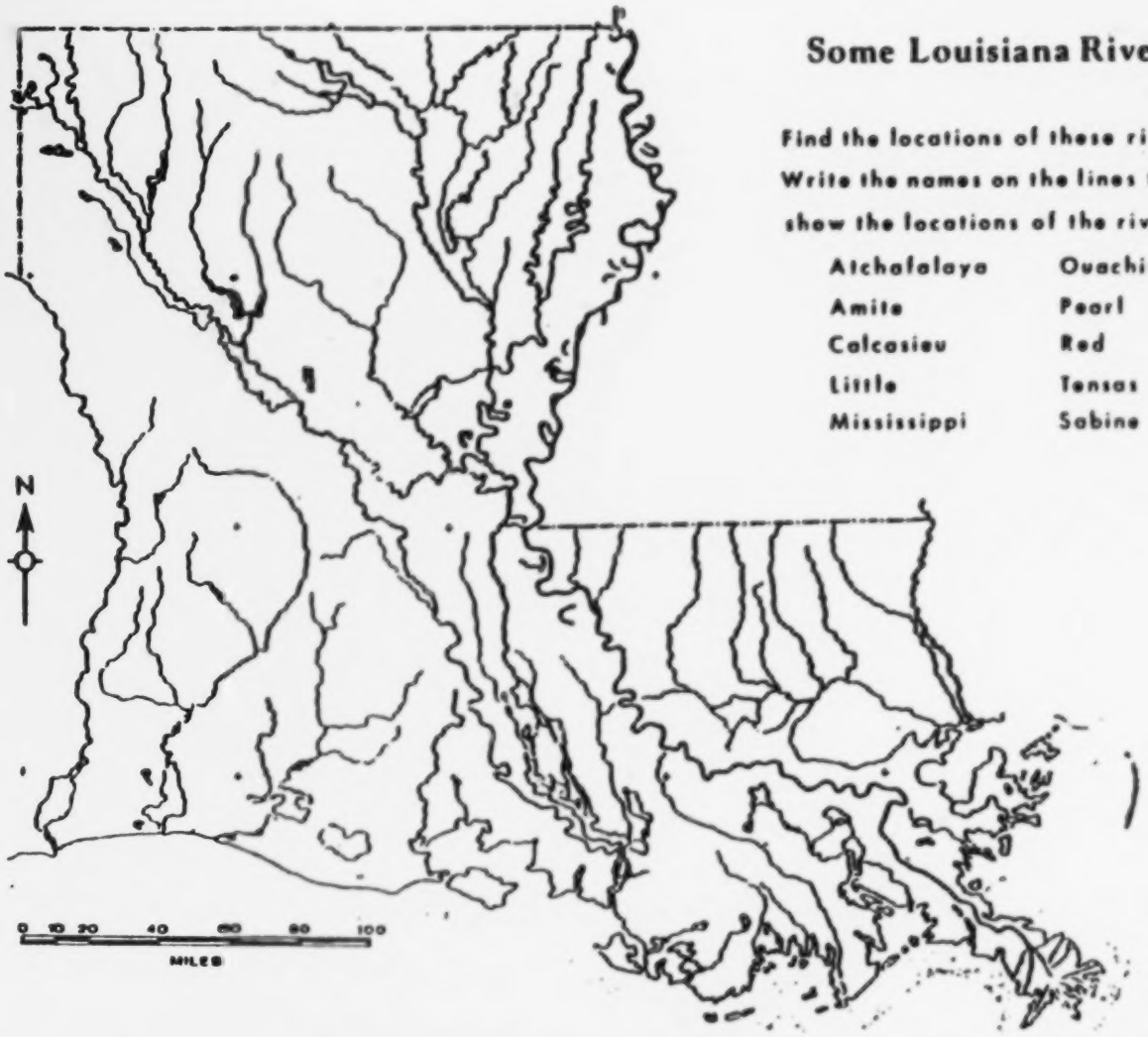

Some Louisiana Rivers

Find the locations of these rivers. Write the names on the lines that show the locations of the rivers.

Atchafalaya	Ouachita
Amite	Pearl
Calcasieu	Red
Little	Tensas
Mississippi	Sabine

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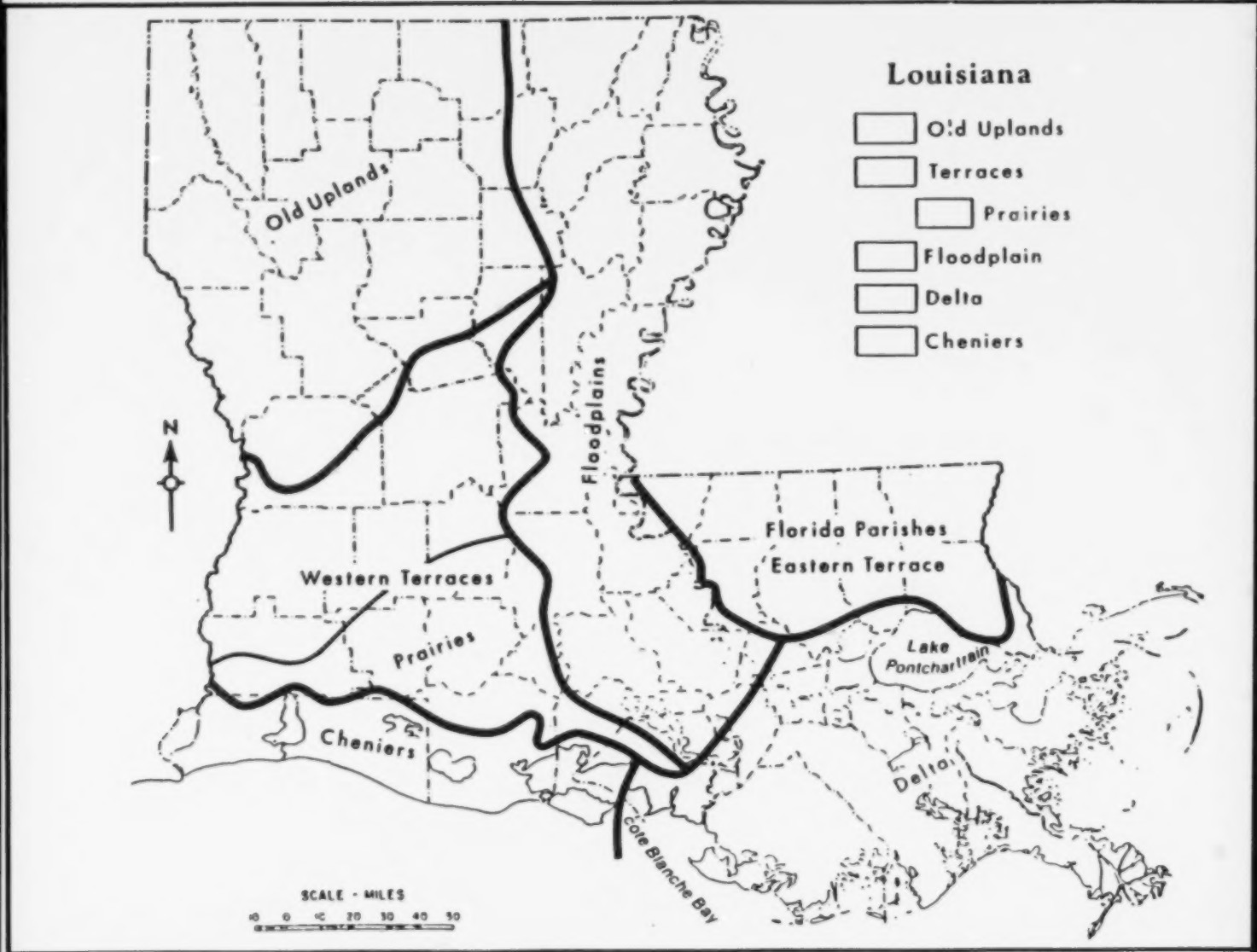

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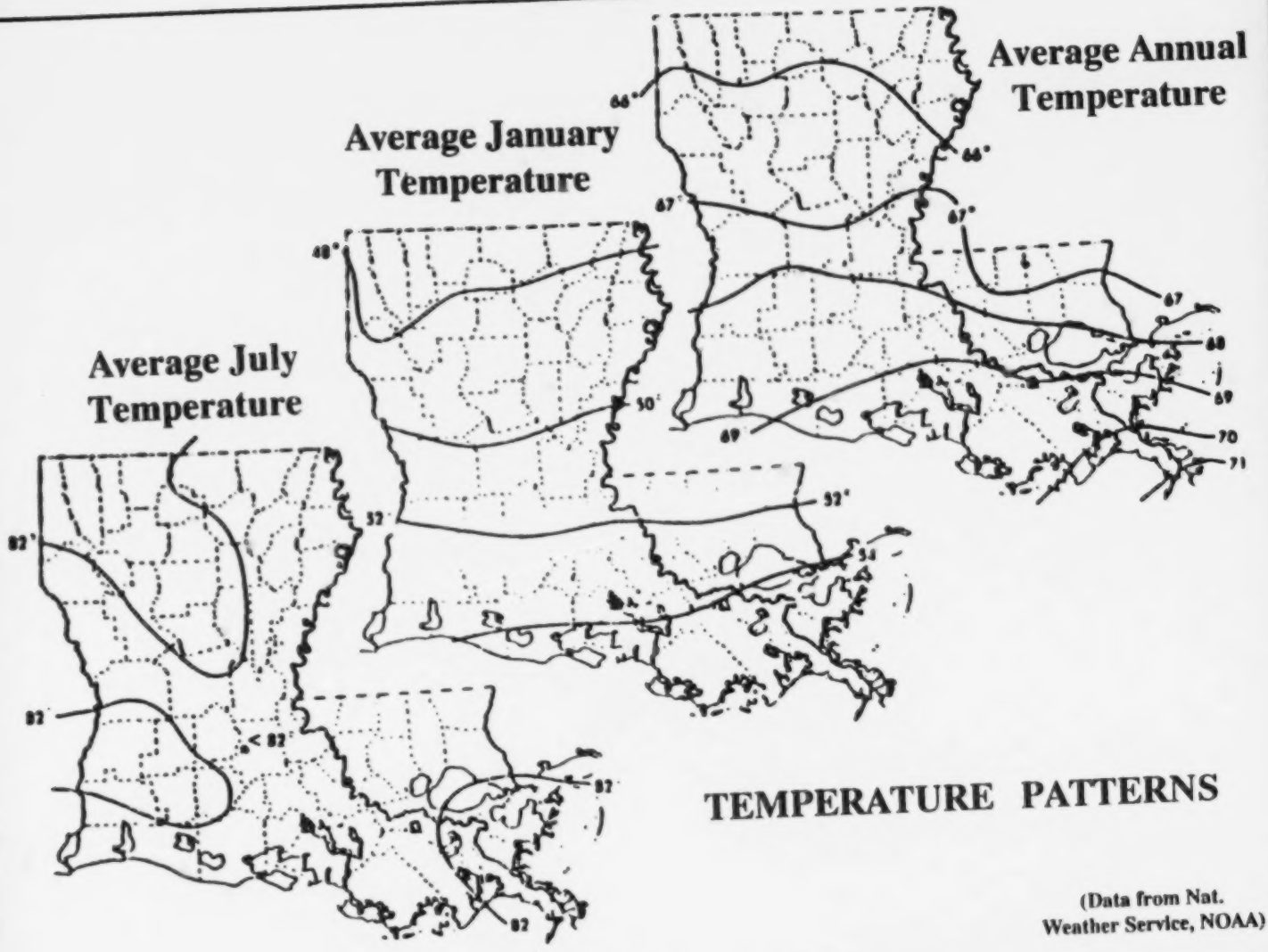

TEMPERATURE PATTERNS

(Data from Nat. Weather Service, NOAA)

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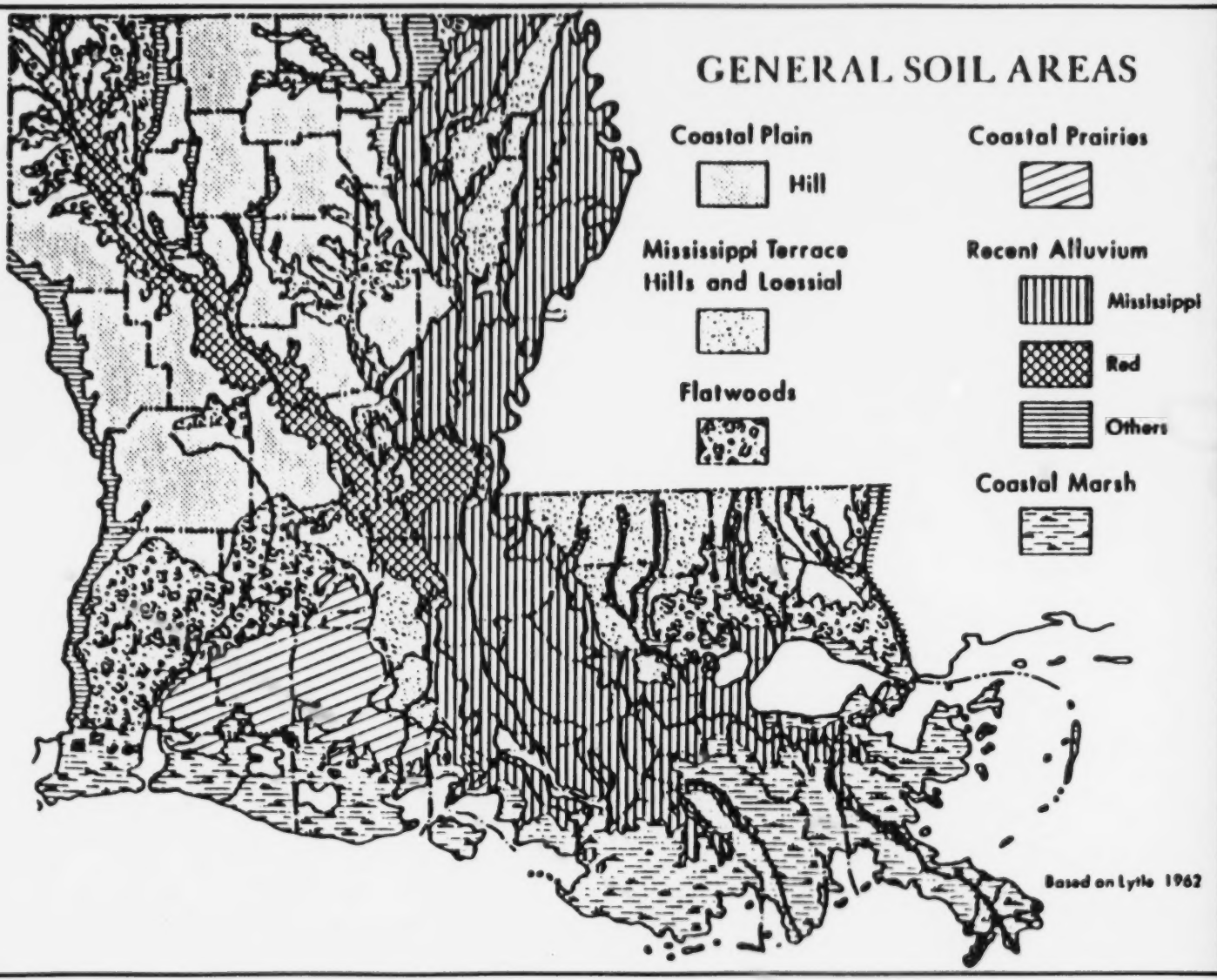

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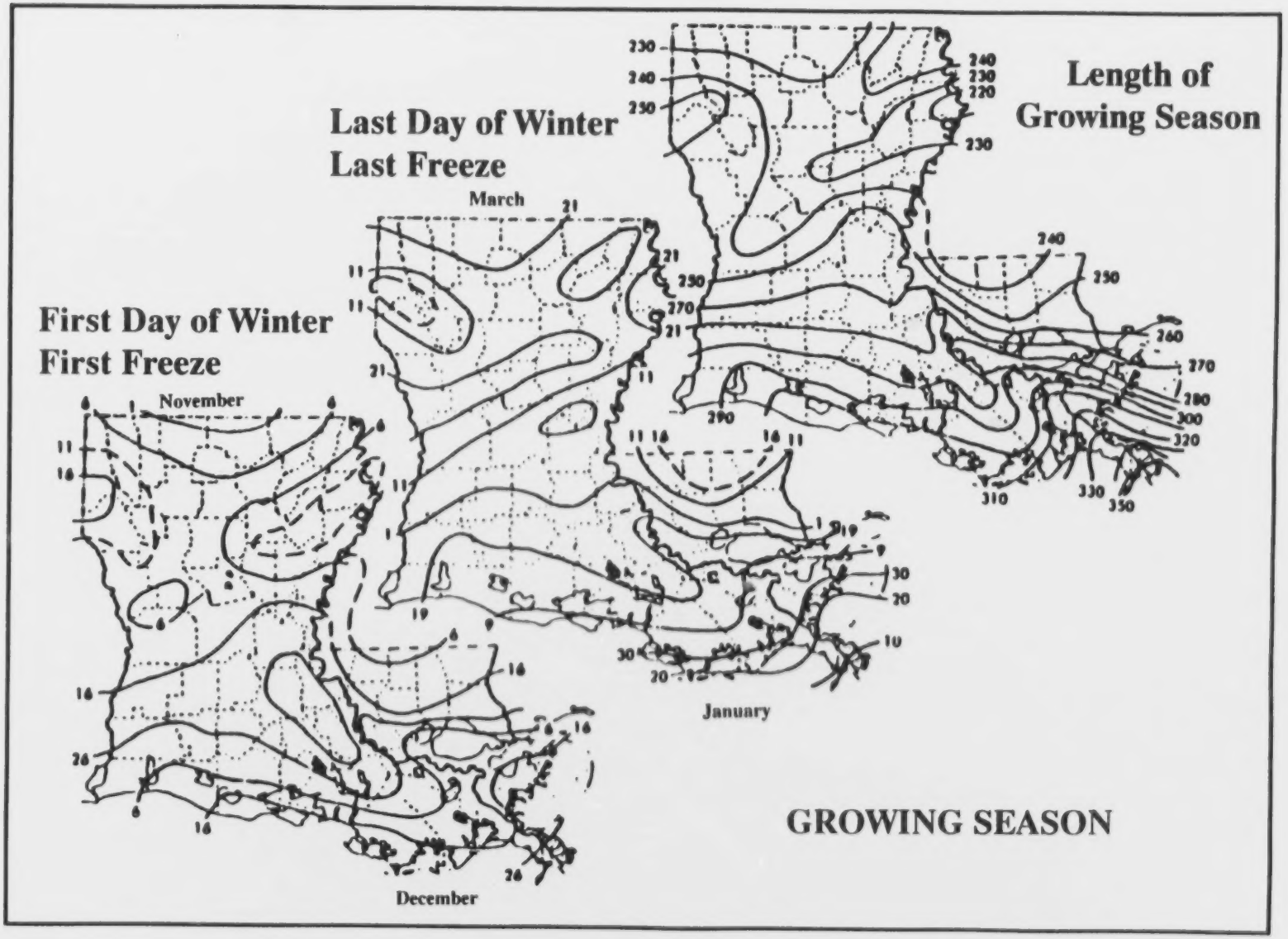

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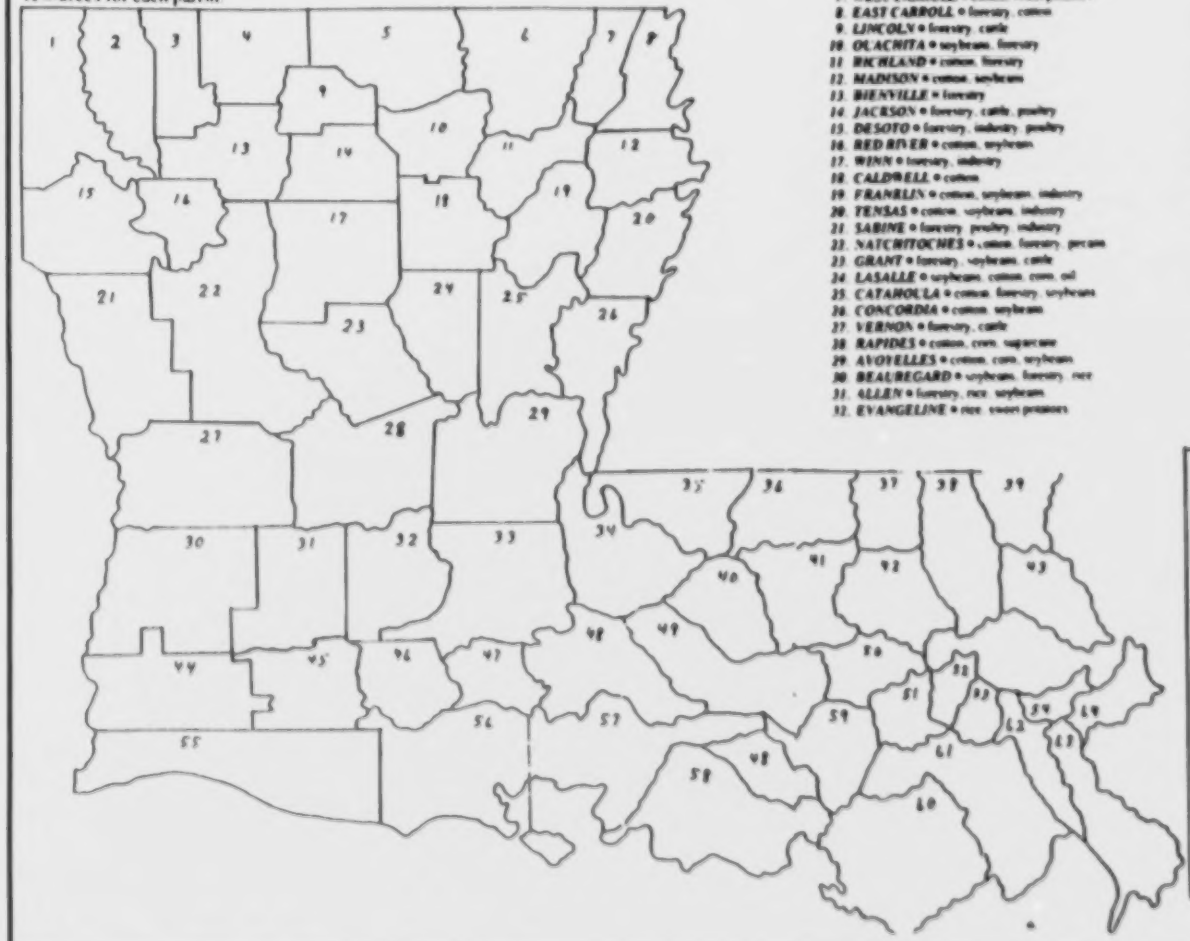
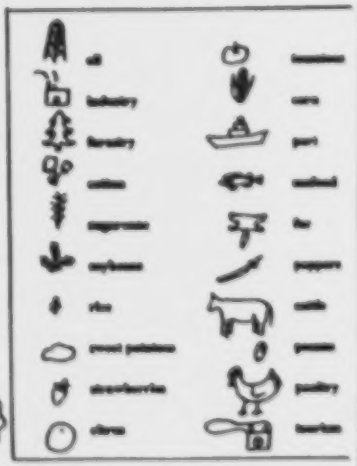
PARISHES AND PRODUCTS

Louisiana's political divisions are called parishes. Using the list of parishes and their products, find each parish by its number on the map. Draw in the symbols for the resources for each parish.



1. CADDO • cotton, oil
2. BOSSIER • cotton, forestry, soybeans
3. WEBSTER • forestry, cotton, industry
4. CLAIBORNE • oil, forestry, cattle
5. UNION • forestry, cattle, industry
6. MOREHOUSE • soybeans, forestry, corn
7. WEST CARROLL • cotton, sweet potatoes
8. EAST CARROLL • forestry, cotton
9. LINCOLN • forestry, cattle
10. OUACHITA • soybeans, forestry
11. RICHLAND • cotton, forestry
12. MADISON • cotton, soybeans
13. BIENVILLE • forestry
14. JACKSON • forestry, cattle, poultry
15. DESOTO • forestry, industry, poultry
16. RED RIVER • cotton, soybeans
17. WINN • forestry, industry
18. CALDWELL • cotton
19. FRANKLIN • cotton, soybeans, industry
20. TENSAS • cotton, soybeans, industry
21. SABINE • forestry, poultry, industry
22. NATCHITOCHES • cotton, forestry, pecans
23. GRANT • forestry, soybeans, cattle
24. LASALLE • soybeans, cotton, corn, oil
25. CATAHOULA • cotton, forestry, soybeans
26. CONCORDIA • cotton, soybeans
27. VERNON • forestry, cattle
28. RAPIDES • cotton, corn, sugarcane
29. AVOYELLES • cotton, corn, soybeans
30. BEAUREGARD • soybeans, forestry, rice
31. ALLEN • forestry, rice, soybeans
32. EVANGELINE • rice, sweet potatoes
33. ST. LANDRY • rice, sweet potatoes, cattle
34. POINTE COUPEE • corn, soybeans, pecans
35. WEST FELICIANA • forestry, cattle, industry
36. EAST FELICIANA • cattle, forestry
37. ST. HELENA • forestry
38. TANGIPAHOA • strawberries, tomatoes
39. WASHINGTON • forestry
40. WEST BATON ROUGE • sugarcane, port
41. EAST BATON ROUGE • soybeans, sugarcane
42. LIVINGSTON • poultry, cattle, forestry
43. ST. TAMMANY • forestry, strawberries
44. CALCASIEU • rice, cattle, oil
45. JEFFERSON DAVIS • sweet potatoes, rice
46. ACADIA • rice, industry, sugarcane
47. LAFAYETTE • rice, soybeans, sugarcane, oil
48. ST. MARTIN • sugarcane, rice, soybeans
49. IBERVILLE • sugarcane, soybeans, industry
50. ASCENSION • sugarcane, soybeans, strawberries
51. ST. JAMES • oil, sugarcane, soybeans
52. ST. JOHN THE BAPTIST • sugarcane, oil
53. ST. CHARLES • sugarcane, industry
54. ORLEANS • port, tourism
55. CAMERON • rice, corn, oil, seafood, fur
56. VERMILLION • rice, sugarcane, oil, seafood, fur
57. IBERIA • sugarcane, peppers, rice, seafood, fur
58. ST. MARY • sugarcane, rice, oil, seafood
59. ASSUMPTION • sugarcane, corn, cattle
60. TERREBONNE • sugarcane, oil, seafood, industry
61. LAFOURCHE • sugarcane, corn, rice, oil
62. JEFFERSON • port, oil, seafood, fur
63. PLAQUEMINES • corn, tomatoes, oil
64. ST. BERNARD • oil, seafood, fur



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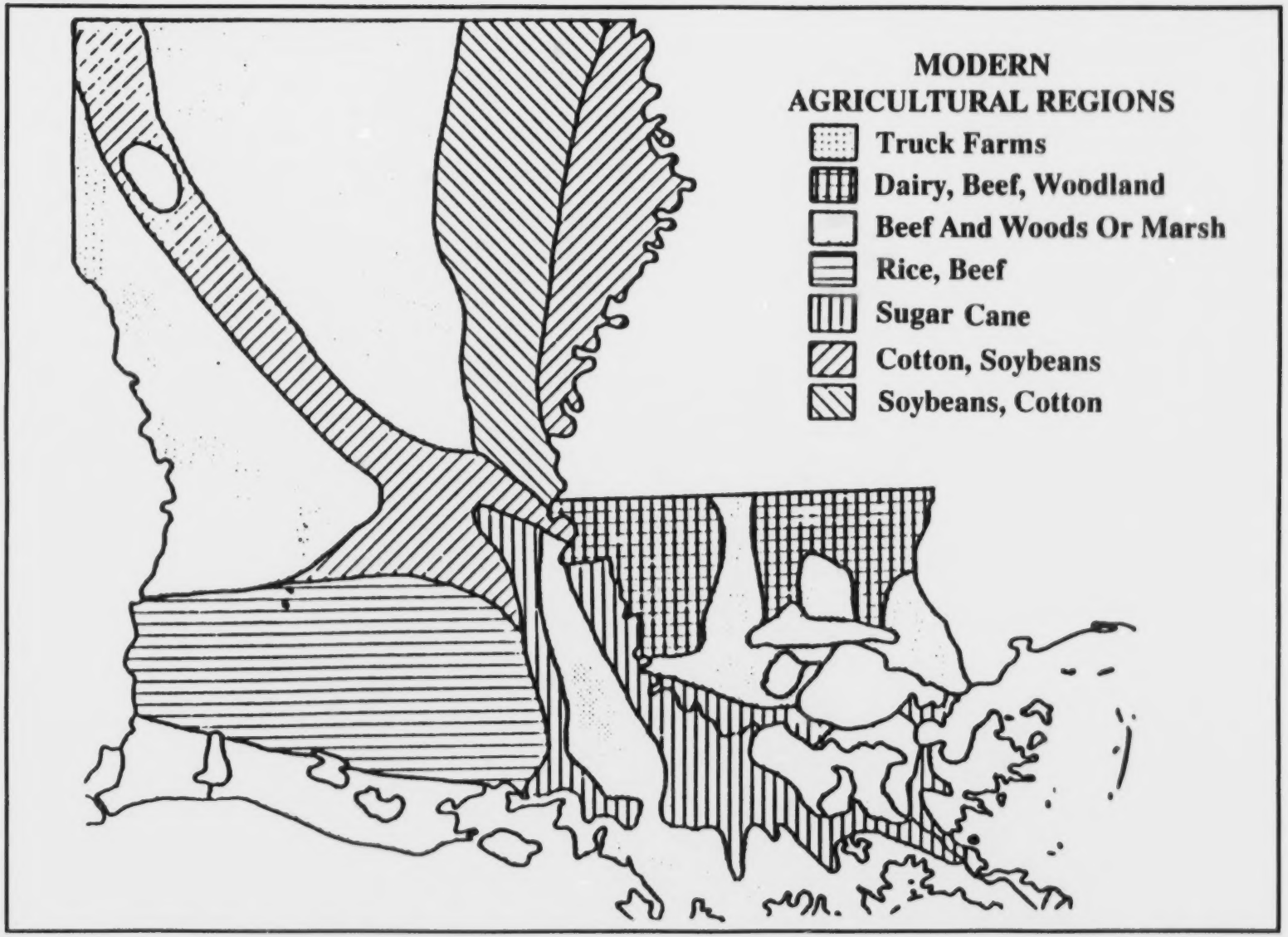
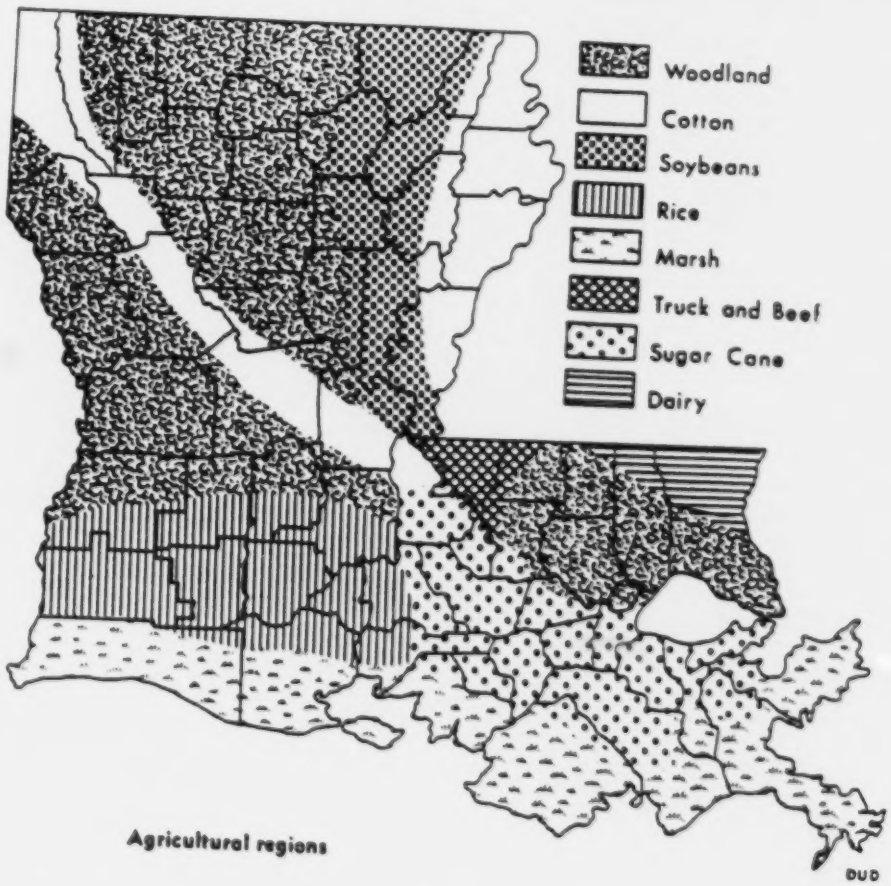

MODERN
AGRICULTURAL REGIONS
Truck Farms
Dairy, Beef, Woodland
Beef And Woods Or Marsh
Rice, Beef
Sugar Cane
Cotton, Soybeans
Soybeans, Cotton

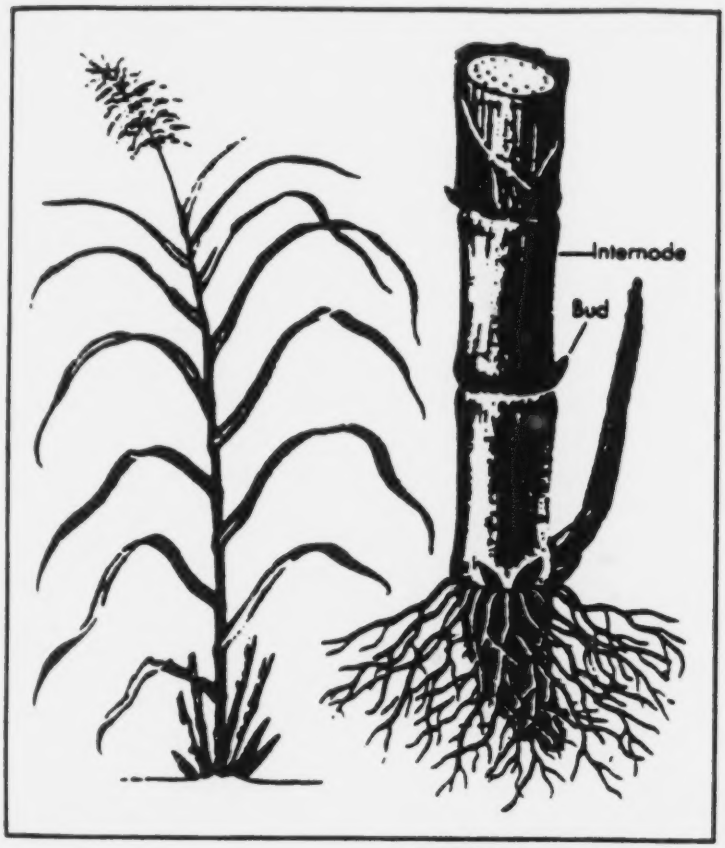
53

59

60



Agricultural regions



WORLD BOOK illustration by James Teason

Sugar cane grows in the form of stalks, *left,* which contain a large amount of sugary juice. The stalks are divided into *internodes, right.* Buds grow in the joints between the internodes.

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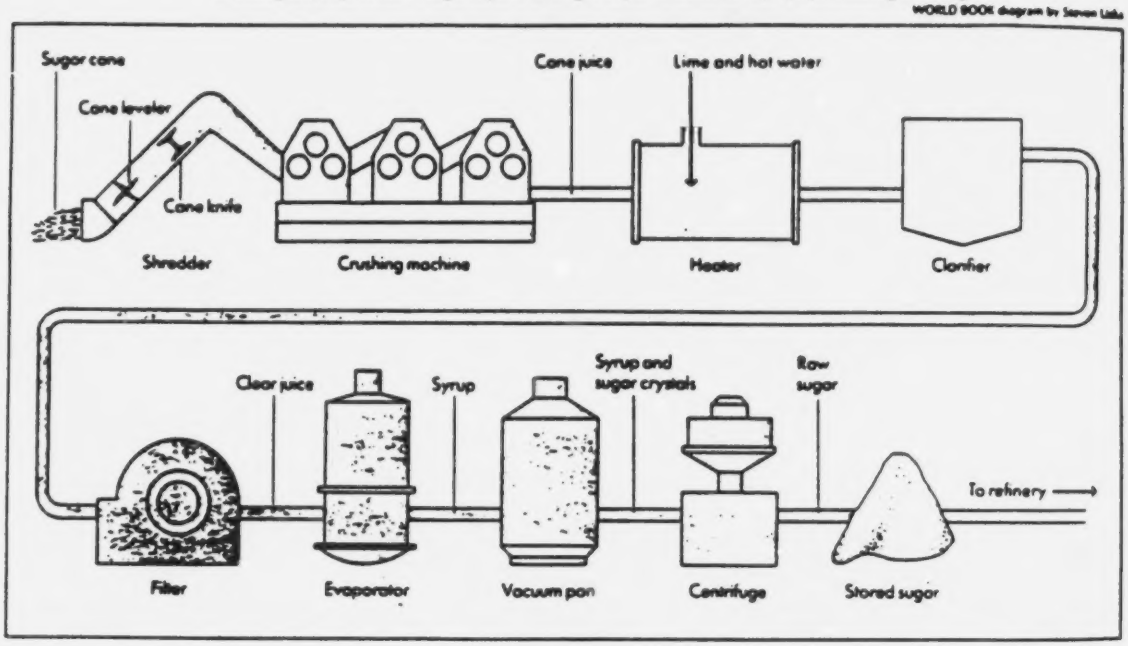
How raw sugar is obtained from sugar cane

To obtain raw sugar from sugar cane, processors first wash and shred the cane. The cane is then placed in a crushing machine, which forces a sugary juice called *cane juice* from the stalks. After the juice is heated and filtered, an evaporator and vacuum pan remove much of the water from it, forming a syrup. A centrifuge separates sugar crystals from the syrup, producing raw sugar.

WORLD BOOK diagram by Steven Lisle



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Leading sugar-producing countries

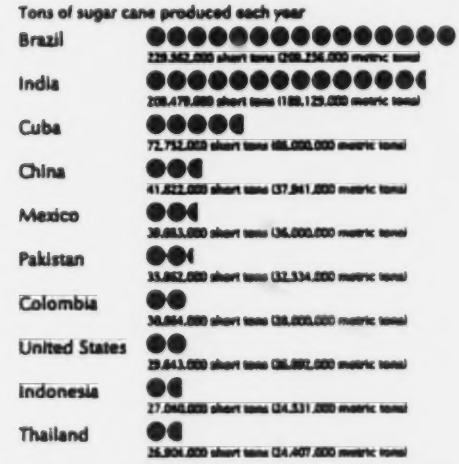
Source: FAO. Figures are for 1983.

Leading sugar-producing states

Source: USDA. Figures are for 1983.

Leading sugar cane growing countries

Tons of sugar cane produced each year



Source: FAO. Figures are for 1983.

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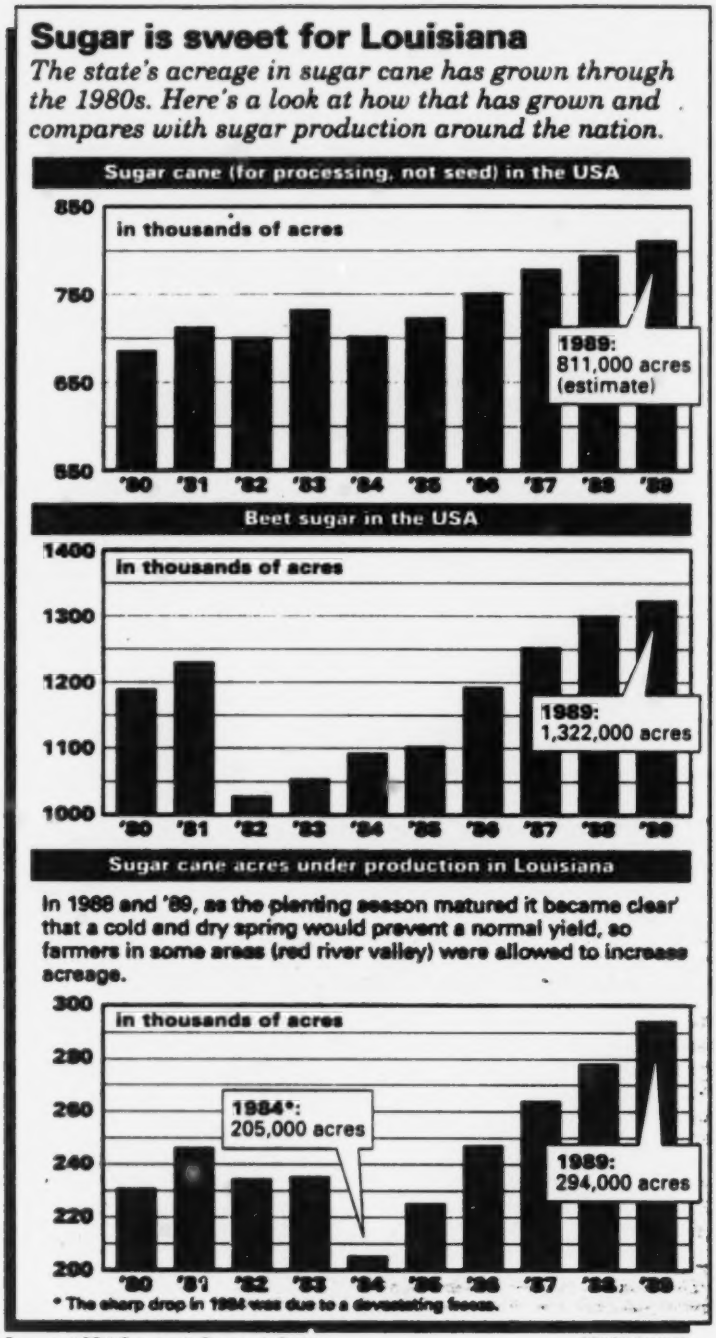
LOUISIANA SUGARCANE INDUSTRY PRODUCTION DATA
1963 TO 1987

CROP YEAR	ACREAGE		SUGAR PRODUCTION			CANE PRODUCTION		YIELD	MOLASSES	INDUSTRY	
	TOTAL PLANTED	HARVESTED FOR SUGAR	SUGAR, RAW VALUE	SUGAR PER ACRE	SUGAR PER GROSS TON	GROSS CANE GROUND	GROSS CANE PER ACRE	RECOVERY RATE PER GROSS TON	800 BRIX	NUMBER OF FARMS	NUMBER OF MILLS
	acres	acres	short tons	pounds	pounds	tons	tons	%	gallons	#	#
1963	322,029	295,492	759,473	5,140	168	9,062,892	30.7	8.38	60,302,273	2,308	46
1964	348,464	325,231	572,710	3,522	145	7,893,099	24.3	7.26	55,997,650	2,301	48
1965	314,241	288,345	550,035	3,815	155	7,088,693	24.6	7.76	46,339,726	2,218	47
1966	315,487	288,483	562,290	3,898	162	6,959,715	24.1	8.08	42,938,192	2,080	47
1967	316,240	293,820	740,234	5,039	170	8,710,147	29.6	8.50	54,632,966	1,912	46
1968	301,226	282,397	668,667	4,736	167	8,027,523	28.4	8.33	50,626,060	1,794	46
1969	256,580	235,090	537,429	4,572	176	6,112,137	26.0	8.79	39,550,133	1,687	44
1970	286,402	265,692	602,361	4,534	159	7,553,312	28.4	7.97	45,811,299	1,589	43
1971	328,387	301,401	571,213	3,790	155	7,368,010	24.4	7.75	43,407,068	1,513	43
1972	344,611	311,377	659,713	4,237	141	9,353,196	30.0	7.05	54,786,202	1,438	43
1973	349,631	318,907	557,854	3,499	148	7,536,708	23.6	7.40	43,807,499	1,290	39
1974	322,455	307,722	593,922	3,860	157	7,566,270	24.6	7.85	41,956,517	1,180	37
1975	330,861	308,000	643,652	4,180	177	7,273,509	23.6	8.85	40,361,988	1,214	36
1976	328,011	291,000	644,800	4,432	150	8,599,287	29.6	7.50	47,060,076	1,187	34
1977	323,633	304,000	668,175	4,396	160	8,327,441	27.4	8.02	43,501,022	1,103	33
1978	288,847	268,000	550,352	4,107	180	6,112,517	22.8	9.00	31,413,562	977	28
1979	262,872	240,000	505,000	4,208	182	5,542,579	23.1	9.11	31,000,000	853	25
1980	253,869	232,000	492,992	4,250	161	6,106,924	26.3	8.07	32,200,000	808	24
1981	265,000	247,000	711,500	5,761	194	7,348,441	29.8	9.68	38,747,800	800	23
1982	250,000	234,000	675,400	5,773	185	7,288,558	31.1	9.27	35,984,685	780	21
1983	265,000	245,000	606,000	4,947	185	6,537,000	26.7	9.27	31,849,000	768	21
1984	230,000	205,000	451,581	4,406	179	5,036,976	24.6	8.97	23,905,000	749	21
1985	250,000	226,000	630,663	4,696	174	6,087,846	26.9	8.72	30,704,000	714	21
1986	270,000	246,300	656,786	5,329	174	7,531,177	30.6	8.72	36,383,395	715	21
1987*	285,000	263,000	733,000	5,574	220	6,665,000	25.3	11.00	37,390,000	725	21

Prepared by : American Sugar Cane League, 9/6/88.
Data source: ASCL and USDA/NASS.

Sugar is sweet for Louisiana

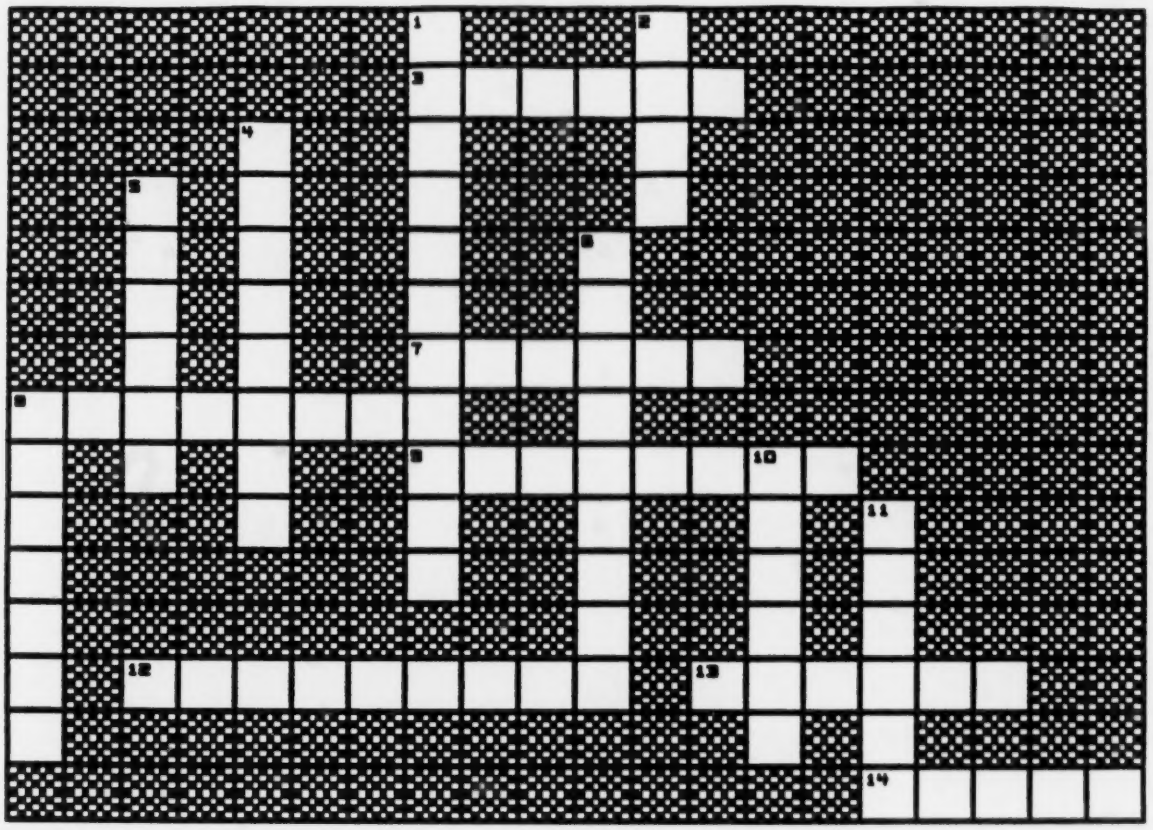
The state's acreage in sugar cane has grown through the 1980s. Here's a look at how that has grown and compares with sugar production around the nation.


Sugar cane (for processing, not seed) in the USA
in thousands of acres
850
750
650
550
1989:
811,000 acres
(estimate)
'80 '81 '82 '83 '84 '85 '86 '87 '88 '89
Beet sugar in the USA
in thousands of acres
1400
1300
1200
1100
1000
1989:
1,322,000 acres
'80 '81 '82 '83 '84 '85 '86 '87 '88 '89
Sugar cane acres under production in Louisiana
In 1988 and '89, as the planting season matured it became clear that a cold and dry spring would prevent a normal yield, so farmers in some areas (red river valley) were allowed to increase acreage.
in thousands of acres
300
280
260
240
220
200
1984*:
205,000 acres
1989:
294,000 acres
'80 '81 '82 '83 '84 '85 '86 '87 '88 '89
* The sharp drop in 1984 was due to a devastating freeze.

Source: USDA Economic Research Service STAFF CHART

Sugar Cane: A Bitter Sweet Legacy

CROSSWORD PUZZLE



ACROSS CLUES

3. a fixed allowance or portion
7. something that has been handed down from an ancestor or predecessor
8. pertaining to a hot climate
9. a business or manufacturing enterprise
12. the salt of a complex organic acid
13. occurring or performed once a year; completing the life cycle in one growing season
14. any loose material serving as a protective covering around plant stems

DOWN CLUES

1. to cause to form crystals or assume crystalline form as with sugar or salt
2. a joint on a stem from which leaves grow
4. relating to farming land and its use
5. a narrow groove or channel made in the soil by a plow
6. to form into small particles or grains
8. the art or process of converting hides or skins into leather
10. to free from impurities or extraneous matter
11. an enclosed space from which almost all air or gas has been removed

Sugar Cane: A Bitter Sweet Legacy

WORD SEARCH ACTIVITY

T X L J B X V B B C P C S X X A L R W L D M N C X
X P R G E S U G D U O K H A R V E S T E K F S C S
U D R W T W D K Y R V K W L C V N F P G A E I I I
O R G S I C H X R M Y U H V S C L Y A U Y Q T L F
F A O I A X O J Y G U A O J O J H T D M C H S E C
V Y H S X X L L Y A C U Y N B Z Z A U E J X F G C
K I Z Y X N M M O S A I C E M R E A R X Q D I A U
W K N L L G Y I J I F V D A N U Q E O I L U O C B
F E V S T Y O F A D T C N P V O X E S C N B R Y E
V S L C Z Y G L A Q F X Q N Y S H M U W Z X K H G
S J S H R M Y K V Z K J O M W G H L G O U F H N W
J W K M W Y I B S O D T B B P Z T V A O E S I B P
A Y T T T R S P N Q B M F H A I D Y R T H K N X P
G N H O H C T T T K L A T S V G F U A H S T G C Z
E O G K C G Y R A W G K T A G O A R I K I P P C I
N H L E R U T C J L O F T G L R O S K F R L K J M
L Y Q G A J U T L J L E U A E P A G S P A T E N T
P O P P T U F K B A A I H U A N Y N J E P J X H I
N V T E S R W G P X M Q Z V N O Q T U C Z C S J Z
U R S X N V B M A Q V A E E K F A G P L L Y V I J
K O G R R C S R O Q P J T K E L A T Z H A H I V Q
A M T R O H H U J S N S D E G S C W F U S T Z N E
O B L S C L Z P M J A Q P X Y Y Z M R Y S Q E M R
Y R D M R S M S H M D M L M F S L R Y R D S D S C
M T L G Y W D F E R O Y H T D A B H J I I T K V A

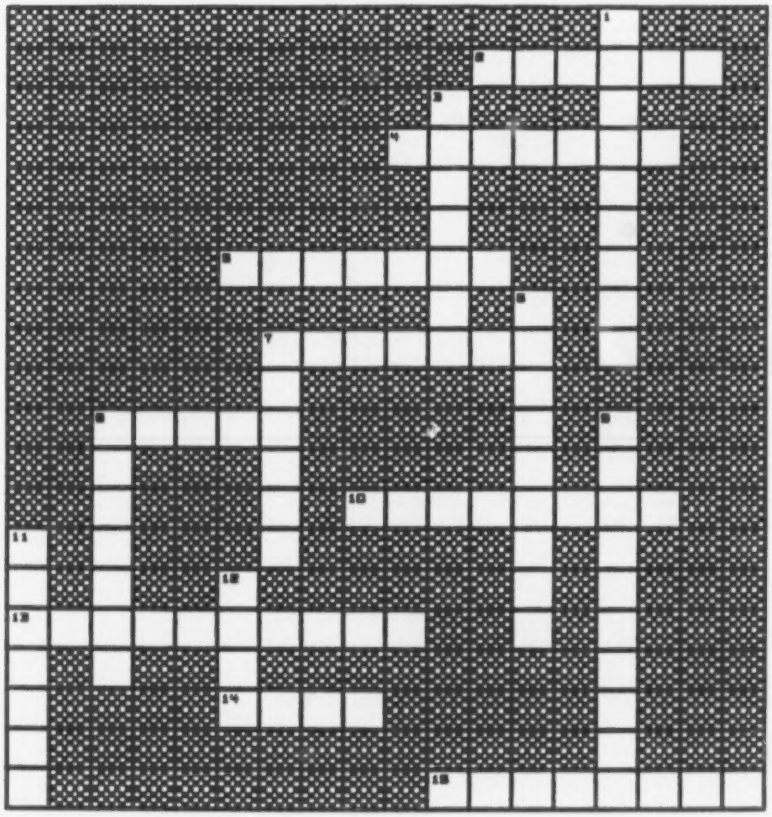
There are 20 words here - can you find them?

Here are the words to look for:

ACRE	BAGASSE
BUD	CORNSTARCH
CRYSTALLIZE	CULTIVATE
CYCLAMATE	EVAPORATE
GRANULATE	HARVEST
HONEY	LEGACY
LEGUME	MOSAIC
PARISH	PATENT
SACCHARIN	STALK
SUGAR	VACUUM

Sugar Cane: A Bitter Sweet Legacy

CROSSWORD PUZZLE



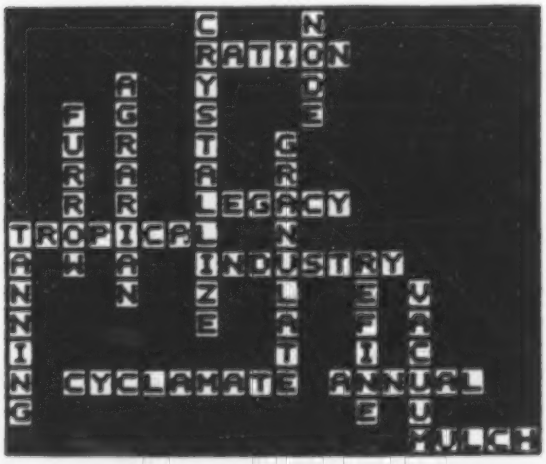
ACROSS CLUES

2. a plant which bears pods containing seeds
4. a group having characteristics of its own
5. the reaping or gathering of a crop
7. a large heavy knife use for cutting sugar cane or underbrush
8. a sweet substance obtained chiefly from sugar cane or sugar beets and used in food products
10. a facility with equipment or purifying products
13. a large farm or estate, especially in a tropical region
14. a building which houses machinery used for crushing or grinding
15. a lack of purity; unprocessed; being impure

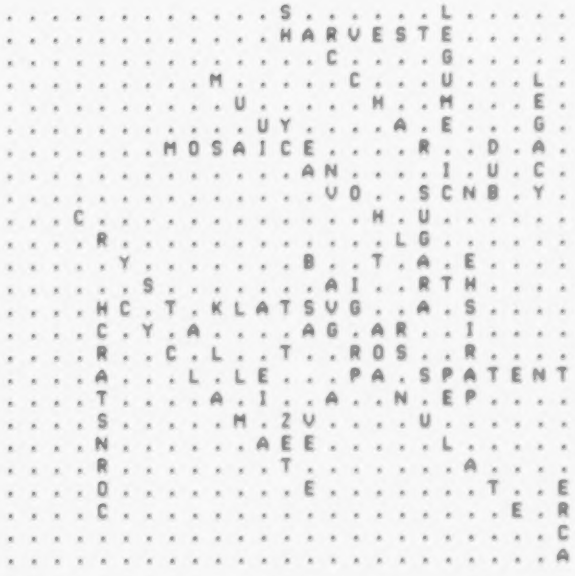
DOWN CLUES

1. to prepare soil for growing crops
3. a fibrous material obtained in the sugar making process
6. to do by machinery rather than by hand
7. an area of economic activity for buying and selling
8. a legume widely grown for its protein-rich and oil-rich edible seeds
9. manure or chemicals put on or in the soil to improve plant growth
11. the upper layer of soil
12. a rural land area where crops or animals are raised

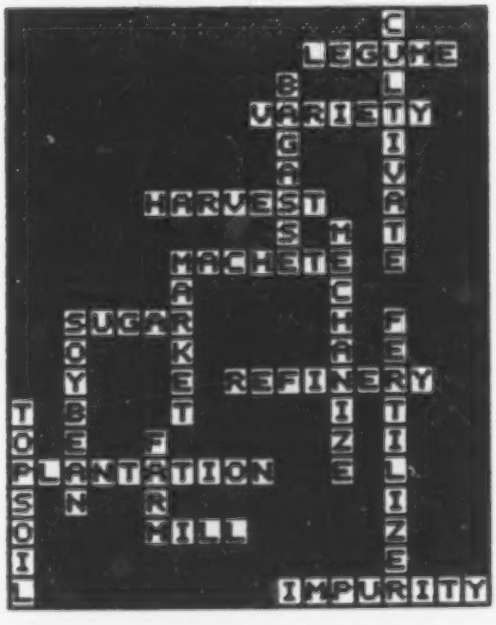
Crossword Puzzle Key



Word Search Activity Key



Crossword Puzzle Key



Sugar Cane: A Bitter-Sweet Legacy
PRE-TEST

I. **True - False**

Directions: Read each statement carefully. Respond to the following statements by circling "T," if it is true of "F," if it is false.

T F 1. Sugar cane is grown from seed.
T F 2. There is a decreasing number of African-American workers in sugar cane production.
T F 3. Technological advancement has improved the production of sugar cane in Louisiana.
T F 4. Sugar cane was first introduced into the Louisiana colony by the Spanish.
T F 5. A node is a joint on a sugar cane stem from which leaves grow.

II. **Identification "Who Am I?"**

Directions: Read each name and statement carefully. Write the alphabet before the name in the blank before the statement which correctly identifies the person.

A. E.C. Howard
B. Etienne de Bore"
C. Norbert Rillieux
D. Antonio Mendez
E. Pierre le Monyne, Sieur de Iberville
F. Christopher Columbus
G. P.B.S. Pinchback

___ 1. I was granted a patent for an improved version of the vacuum pan process in 1845.
___ 2. I was responsible for developing a way to commercially manufacture sugar from sugar cane.
___ 3. I built the first sugar mill in 1791, in New Orleans, Louisiana.
___ 4. I invented the vacuum pan in England in 1813.
___ 5. It is believed that I brought sugar cane cuttings to the Caribbean Islands in the late 15th century.

III. **Sequencing**

Directions: Read each of the following carefully. Indicate the correct chronology from number one through number five for each of the following steps in growing and producing sugar cane.

___ 1. soil preparation
___ 2. processing
___ 3. harvesting
___ 4. planting
___ 5. refining

IV. **Multiple-Choice**
Directions: Read each statement carefully. Write the alphabet in the blank that best completes the statement.

___ 1. Sugar cane is grown in continental United States only in

a. Alabama, Louisiana, and Mississippi
b. Louisiana, Florida, and Texas
c. Arkansas, Louisiana, and Mississippi
d. Florida, Louisiana, and Alabama

___ 2. All of the following foreign countries are leading producers of sugar cane except

a. Brazil
b. India
c. Cuba
d. Thailand

___ 3. Two important by-products of sugar production are

a. sugar beets and corn
b. glucose and saccharin
c. blackstrap molasses and bagasse
d. sugar cane and sugar beets

___ 4. Sugar cane does not have to be planted each year because

a. a second crop will grow from the same roots
b. crops are harvested every two years
c. the nutrient content of the soil increases each year
d. enough sugar is produced annually to satisfy supply and demand for several years

___ 5. All of the following are parts of the sugar cane plant except

a. stalk
b. ratoon
c. internodes
d. leaf

Sugar Cane: A Bitter-Sweet Legacy
PRE-TEST ANSWER KEY

I. **True - False**
1. F
2. T
3. T
4. F
5. T

II. **Identification - "Who Am I?"**
1. C
2. B
3. D
4. A
5. F

III. **Sequencing**
1. 1
2. 4
3. 3
4. 2
5. 5

IV. **Multiple-Choice**
1. B
2. D
3. C
4. A
5. B

Sugar Cane: A Bitter-Sweet Legacy
POST-TEST

I. **True-False**
Directions: Read each statement carefully. Respond to the following statements by circling "T," if it is true or "F," if it is false.

T F 1. Sugar cane is grown from seed.
T F 2. There is a decreasing number of African-American workers in sugar cane production.
T F 3. Technological advancement has improved the production of sugar cane in Louisiana.
T F 4. Sugar cane was first introduced into the Louisiana colony by the Spanish.
T F 5. Louisiana produces about 35 percent of the sugar cane produced in the continental United States.

II. **Identification - "Who Am I?"**
Directions: Read each statement carefully. Write the name of the person or place identified in the blank below the statement.

1. I was granted a patent for an improved version of the vacuum pan process in 1845.

_____

2. I was responsible for developing a way to commercially manufacture sugar from sugar cane.

_____

3. We planted the first sugar cane patch in 1751 in what is now downtown New Orleans.

_____

4. I am the town in southeast Louisiana where, in 1884, the Sugar Exchange started an experiment station.

_____

5. It is believed that I brought sugar cane cuttings to the Caribbean islands in the late 15th century.

_____

III. **Select-A-Term/Phrase**
Directions: Circle the alphabet before the item that does *not* belong with the others.

1. Bagasse: a. mulch b. celotex c. plastics d. alcohol

2. Disaccharides: a. cellulose b. sucrose c. lactose d. maltose

3. Varieties:	a.	Canal Point	b.	Mosaic
	c.	Noble	d.	Indian
4. Sugar growth factors:	a.	latitude	b.	length of growing season
	c.	precipitation	c.	longitude
5. Kinds of sugar:	a.	monosaccharides	b.	disaccharides
	c.	nucleic acids	d.	trisaccharides

IV. **Sequencing**

Directions: Read each item carefully. Indicate the correct chronology, from number one through number five, for each of the following steps in growing and producing sugar cane.

___ 1. cultivation

___ 2. processing

___ 3. harvesting

___ 4. planting

___ 5. refining

V. **Matching**

Directions: Each phrase in Column A is related to a person in Column B. Write the correct alphabet in the blank before each phrase in Column A.

	Column A		Column B
___ 1.	"sugar machine"	a.	E.C. Howard
___ 2.	vacuum pan	b.	Etienne de Bore'
___ 3.	first sugar mill	c.	Norbert Rillieux
___ 4.	sugar refining	d.	Antonio Mendez
___ 5.	sugar cane introduced to Louisiana colony	e.	Iberville

VI. **Classifying**

Directions: Listed below are processes in growing and harvesting cane. Place the alphabet "H" in the blank before the event reflected in the harvesting process, and the alphabet "P" before those in the planting process.

___ 1. annual mid-August function

___ 2. field set afire

___ 3. cuttings placed in furrows

___ 4. leaves stripped from stalks

___ 5. stalks thrown into windows

VII. **Multiple Choice**
Directions: Write the alphabet in the blank that best completes the statement.

___ 1. Sugar cane is grown in continental United States only in
   a. Alabama, Louisiana, and Mississippi
   b. Louisiana, Florida, and Texas
   c. Arkansas, Louisiana, and Mississippi
   d. Florida, Louisiana, and Alabama

___ 2. Two important by-products of sugar production are
   a. sugarbeets and corn
   b. glucose and saccharin
   c. blackstrap molasses and bagasse
   d. sugar cane and sugar beets

___ 3. Sugar cane does not have to be planted each year because
   a. a second crop will grow from the same roots
   b. crops are harvested every two years
   c. the nutrient content of the soil increases each year
   d. enough sugar is produced annually to satisfy supply and demand for several years

___ 4. Louisiana farmers used approximately how many acres of land for sugar cane production in 1989?
   a. 150,000 acres
   b. 528,000 acres
   c. 75,000 acres
   d. 294,000 acres

___ 5. What factor could contribute to the prevention of a normal yield of sugar cane?
   a. a devastating freeze
   b. a dry spring
   c. a cold spring
   d. all of these

Sugar Cane: A Bitter Sweet Legacy
POST-TEST ANSWER KEY

I. **True - False**
1. F
2. T
3. T
4. F
5. T

II. **Identification - "Who Am I?"**
1. Norbert Rillieux
2. Etienne de Bore'
3. Jesuits
4. Kenner, Louisiana
5. Christopher Columbus

III. **Select-A-Term/Phrase**
1. D
2. A
3. B
4. D
5. D

IV. **Sequencing**
1. 2
2. 4
3. 3
4. 1
5. 5

V. **Matching**
1. C
2. A
3. D
4. B
5. E

VI. **Classifying**
1. P
2. H
3. P
4. H
5. H

VII. **Multiple-Choice**
1. B
2. C
3. A
4. D
5. D

Sorrow Home

Margaret Walker

My roots are deep in southern life; deeper than John Brown
or Nat Turner or Robert Lee. I was sired and weaned in
a tropic world. The palm tree and banana leaf, mango
and coconut, breadfruit and rubber trees know me.

Warm skies and gulf blue streams are in my blood. I belong
with the smell of fresh pine, with the rail of coon,
and the spring growth of wild onion.

I am no hot-house bulb to be reared in steam-heated flats
with the music of "L" and subway in my ears, walled
in by steel and wood and brick far from the sky.

I want the cotton fields, tobacco and the cane. I want to
walk along with sacks of seed to drop in fallow ground.
Restless music is in my heart and I am eager to be gone.

O Southbound, sorrow home, melody beating in my bone and
blood! How long will the Klan of hate, the hounds
and the chain gangs keep me from my own?

Delta

Margaret Walker

I am a child of the valley.
Mud and muck and misery of lowlands
are on thin tracks of my feet.
Damp draughts of mist and fog hovering over valleys
are on my feverish breath.
Red clay from feet of beasts colors my mouth
and there is blood on my tongue.

I go up and down and though this valley
and my heart bleeds with my blood here in the valley.
My heart bleeds for our fate.
I turn to each stick and stone, marking them for my own;
here where muddy water flows at our shanty door
and levees stand like a swollen bump on our backyard.

I watch rivulets flow
trickling into one great river
running through little towns
through swampy thickets and smoky cities
through fields of rice and marshes
where the marsh hen comes to stand
and buzzards draw thin blue steaks against evening sky.
I listen to crooning of familiar lullabies;
the honky-tonks are open and the blues are ringing far.
In cities a thousand red lamps glow,
but the light fails to stir me
and the music cannot lift me
and my despair only deepens with the wailing
of a million voices strong.

O valley of my moaning brothers!
Valley of my sorrowing sisters!
Valley of lost forgotten men.
O hunted desperate people
stricken and silently submissive
seeking yet sullen ones!
If only from this valley we might rise with song!
With singing that is ours.

II
Here in this valley of cotton and cane and banana wharves we labor.
Our mothers and fathers labored before us here in this low valley.

High above us and round about us stand high mountains
rise the towering snow-capped mountains
while we are beaten and broken and bowed
here in this dark valley.

High above us and round about us stand high mountains
rise the towering snow-capped mountains
while we are beaten and broken and bowed
here in this dark valley.

The river passes us by.
Boats slip by on the edge of horizons.
Daily we fill boats with cargoes of our need
and send them out to sea.

Orange and plantain and cotton grow
here in this wide valley.
Wood fern and sour grass and wild onion grow
here in this sweet valley.

We tend the crop and gather the harvest
but not for ourselves do we labor,
not for ourselves do we sweat and starve and spend
under these mountains we dare not claim,
here on this earth we dare not claim,
here by this river we dare not claim.
Yet we are an age of years in this valley;
yet we are bound till death to this valley.
Nights in the valley are full of haunting murmurings
of our musical prayers
of our rhythmical loving
of our fumbling thinking aloud.
Nights in the houses of our miserable poor
are wakeful and tormenting,
for out of a deep slumber we are 'roused
to our brother who is ill
and our sister who is ravished
and our mother who is starving.
Out of a deep slumber truth rides upon us
and makes us restless and wakeful
and full of a hundred unfulfilled dreams of today;
our blood eats through our veins with the terrible
destruction of radium in our bones and rebellion in our
brains and we wish no longer to rest.

III
Now burst the dams of years
and winter snows melt with an onrush of a turbulent spring.
Now rises sap in slumbering elms
and floods overwhelm us
here in this low valley.
Here there is a thundering sound in our ears.
All the day we are disturbed;
nothing ever moved our valley more.
The cannons boom in our brains
and thee is a dawning understanding
in the valleys of our spirits;
there is a crystalline hope
there is a new way to be worn and a path to be broken from the past.
Into our troubled living flows the valley
flooding our lives with a passion for freedom.
our silence is broken in twain
even as brush is broken before terrible rain
even as pines rush in paths of hurricanes.
our blood rises and bursts in great heart spasms
hungering down through valleys in pain
and the storm begins.
We are dazed in wonder and caught in the downpour.
Danger and death stalk the valley.
Robbers and murderers rape the valley
taking cabins and children from us
killing wives and sweethearts before us
seeking to threaten us out of this valley.

Then with a longing dearer than breathing
love for the valley arises within us
love to possess and thrive in this valley
love to possess our vineyards and pastures
our orchards and cattle
our harvest of cotton, tobacco, and cane.
Love overwhelms our living with longing
strengthening flesh and blood within us
banding the iron of our muscles with anger
making us men in the fields we have tended
standing defending the land we have tendered
rich and abiding and heaving with plenty.

We with our blood have watered these fields
and they belong to us.
Valleys and dust of our bodies are blood brothers
and they belong to us:
the long golden grain for bread
and the ripe purple fruit for wine

the hills beyond for peace
and the grass beneath for rest
the music in the wind for us
the nights for loving the days for living
and the circling lines in the sky
for dreams.

We are like the sensitive Spring
walking valleys like a slim young girl
full breasted and precious limbed
and carrying on our lips the kiss of the world.
Only the naked arm of Time
can measure the ground we know
and thresh the air we breathe.
Neither earth nor star nor water's host
can sever us from our life to be
for we are beyond your reach O might winnowing flail!
infinite and free!

Freedom's Plow

Langston Hughes

When a man starts out with nothing,
When a man starts out with his hands
Empty, but clean,
When a man starts out to build a world,
He starts first with himself
And the faith that is in his heart-
The strength there,
The will there to build.

First in the heart is the dream,
Then the mind starts seeking a way.
His eyes look out on the world,
On the great wooded world,
On the rich soil of the world,
On the rivers of the world.

The eyes see there materials for building,
See the difficulties, too, and the obstacles.
The hand seeks tools to cut the wood,
To till the soil, and harness the power of the waters.
Then the hand seeks other hands to help,
A community of hands to help-
Thus the dream becomes not one man's dream alone,
But a community dream.
Not my dream alone, but our dream.
Not my world alone,
But your world and my world,
Belonging to all the hands who build.

A long time ago, but not too long ago,
Ships came from across the sea
Bringing Pilgrims and prayer-makers,
Adventurers and booty seekers,
Free men and indentured servants,
Slave men and slave masters, all new-
To a new world, America!

With billowing sails the galleons came
Bringing men and dreams, women and dreams.
In little bands together,
Heart reaching out to heart,
Hand reaching out to hand,
They began to build our land.
Some were free hands
Hoping to find their freedom,

Some were slave hands
Guarding in their hearts the seed of freedom.
But the word was there always:

Freedom

Down into the earth went the plow
In the free hands and the slave hands,
In indentured hands and adventurous hands,
Turning the rich soil went the plow in many hands
That planted and harvested the food that fed
And the cotton that clothed America.
Clang against the trees went the ax in many hands
That hewed and shaped the rooftops of America.
Splash into the rivers and the seas went the boat-hulls
That moved and transported America.
Crack went the whips that drove the horses
Across the plains of America.
Free hands and slave hands,
Indentured hands, adventurous hands,
White hands and black hands
Held the plow handles,
Ax handles, hammer handles,
Launched the boats and whipped the horses
That feed and housed and moved America.
Thus together through labor,
All these hands made America.
Labor! Out of labor came the villages
And the towns that grew to cities.
Labor! Out of labor came the rowboats
And the sailboats and the steamboats,
Came the wagons, stage coaches,
Out of labor came the factories,
Came the foundries, came the railroads,
Came the marts and markets, shops and stores,
Came the mighty products moulded, manufactured,
Sold in shops, piled in warehouses,
Shipped the wide world over:
Out of labor-white hands and black hands-
Came the dream, the strength, the will,
And the way to build America.
Now it is Me here, and You there.
Now it's Manhattan, Chicago,
Seattle, New Orleans,
Boston and El Paso-
Now it is the U.S.A.

A long time ago, but not too long ago, a man said:

All men are created equal...
Endowed by their creator
With certain inalienable rights...
Among these life, liberty
And the pursuit of happiness.

His name was Jefferson. There were slaves then,
But in their hearts the slaves believe him, too,
And silently took for granted
That what he said was also meant for them.
It was a long time ago,
But not so long ago at that, Lincoln said:

No man is good enough
to govern another man
without that other's consent.

There were slaves then, too,
But in their hearts the slaves knew
What he said must be meant for every human being-
Else it had no meaning for anyone.
then a man said:

Better to die free
Than to live slaves.

He was a colored man who had been a slave
But had run away to freedom.
And the slaves knew
What Frederick Douglass said was true.
With John Brown at Harpers Ferry, Negroes died.
John Brown was hung.
Before the Civil War, days were dark.
And nobody knew for sure
When freedom would triumph.
"Or if it would," thought some.
But others knew it had to triumph,
In those dark days of slavery,
Guarding in their hearts the seed of freedom,
The slaves made up a song:

Keep your hand on the plow! Hold On!

That song meant just what it said: Hold on!
Freedom will come!

Keep your hand on the plow! Hold On!

Out of war, it came, bloody and terrible!
But it came!
Some there were, as always,
Who doubted that the war would end right,
That the slaves would be free,
Or that the union would stand.
But now we know how it all came out.
Out of the darkest days for a people and a nation,
We know now how it came out.
There was light when the battle clouds rolled away.
There was a great wooded land,
And men united as a nation.

America is a dream.
The poet says it was promises.
The people say it is promises--that will come true.
The people do not always say things out loud,
Nor write them down on paper.
The people often hold
Great thoughts in their deepest hearts
And sometimes only blunderingly express them,
Haltingly and stumbling say them,
And faultily put them into practice.
The people do not always understand each other.
But there is, something there,
Always the trying to understand,
And the trying to say,
"You are a man. Together we are building our land."

America!
Land created in common,
Dream nourished in common,
Keep your hand on the plow! Hold on!
If the house is not yet finished,
Don't be discouraged, builder!
If the fight is not yet won,
Don't be weary, soldier!
The plan and the pattern is here,
Woven from the beginning
Into the warp and woof of America:

All men are created equal.
No man is good enough
To govern another man without
that other's consent.

Better die free,
Than live slaves.

Who said those things? Americans!
Who owns those words? America!
Who is America? You, Me!
We are America!
To the enemy who would conquer us from without,
We say, **No!**
To the enemy who would divide
And conquer us from within,
We say, **No!**

Freedom!
Brotherhood!
Democracy!

To all the enemies of these great words:
We say, **No!**

A long time ago,
An enslaved people heading toward freedom
Made up a song:
Keep Your Hand On The Plow! Hold On!
That plow plowed a new furrow
Across the field of history.
Into that furrow the freedom seed was dropped.
From that seed a tree grew, is growing, will ever grow.
That tree is for everybody,
For all America, for all the world.
May its branches spread and its shelter grow
Until all races and all peoples know its shade.

Keep Your Hand On The Plow! Hold On!

A Black Man Talks of Reaping

Ama Bontemps

I have sown beside all waters in my day,
I planted deep within my heart the fear
That wind or fowl would take the grain away
I planted safe against this dark, lean year.

I scattered seed enough to plant the land
In rows from Canada to Mexico
But for my reaping, only what the hand
Can hold at once is all that I can show.

Yet, what I sowed and what the orchard yields
My brother's sons are gathering stalk and root
Small wonder then my children glean in fields
They have not sown, and feed on bitter fruit.

Old Black Men

Georgia Douglas Johnson

They have dreamed as young men dream
Of glory, love and power,
They hoped as youth will hope
O life's sun-minted hour.

They have seen as other saw
Their bubbles burst in air,
And they have learned to live it down
As though they did not care.

Who is That A-Walking in the Corn?

Fenton Johnson

Who is that a-walking in the corn?
I have looked to East and looked to West
But nowhere could I find Him who walks
Master's cornfield in the morning.

Who is that a-walking in the corn?
Is it Joshua, the son of Nun?-
Or King David come to fight the giant
Near the cornfield in the morning?

Who is that a-walking in the corn?
Is it Peter jangling Heaven's keys?-
Or old Gabriel come to blow his horn
Near the cornfield in the morning?

Who is that a-walking in the corn?
I have looked to East and looked to West
But nowhere could I find Him who walks
Master's cornfield in the morning.

From the Dark Tower

Countee Cullen

We shall not always plant while others reap,
The golden increment of bursting fruit,
Not always countenance, object and mute
That lesser men should hold their brothers cheap
Not everlastingly while others sleep
Shall we beguile their limbs with mellow flute,
Not always bend to some more subtle brute;
We were not made eternally to weep.

The night whose sable breast relives the stark
White stars is no less lovely being dark,
And there are buds that cannot bloom at all
In light, but crumble, piteous and fall;
So, in the dark we hide the heart that bleeds,
And wait and tend our agonizing seeds.

RECIPE

LHJ's Most-Requested Christmas Cookies

SUGAR COOKIES

Pre time: 1 hour plus chilling
Baking time: 8 to 9 minutes per batch

2-1/2	cups all-purpose flour
1/4	teaspoon salt
1	cup butter, softened
1	cup sugar
1	large egg
1-1/2	teaspoons grated lemon peel
1/2	teaspoon vanilla extract
	decorative icing optional

Combine flour and salt in bowl. Beat butter and sugar in mixer bowl until light and fluffy. Beat in egg, lemon peel and vanilla. Beat in dry ingredients until combined. Cover and refrigerate overnight.

Preheat oven to 350 degrees F. Grease 4 cookie sheets. Divide dough into quarters. Roll 1 quarter between 2 sheets of waxed paper 1/8-inch thick. Keep remaining dough refrigerated. With floured 2-inch cookie cutter, cut into desired shapes. Bake 8 to 9 minutes, until edges are golden. Cool on wire racks. Repeat with remaining dough. Decorate as desired with decorative icing. Makes 7 dozen, 45 calories each.

NOTES

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